DOCUMENT RESUME

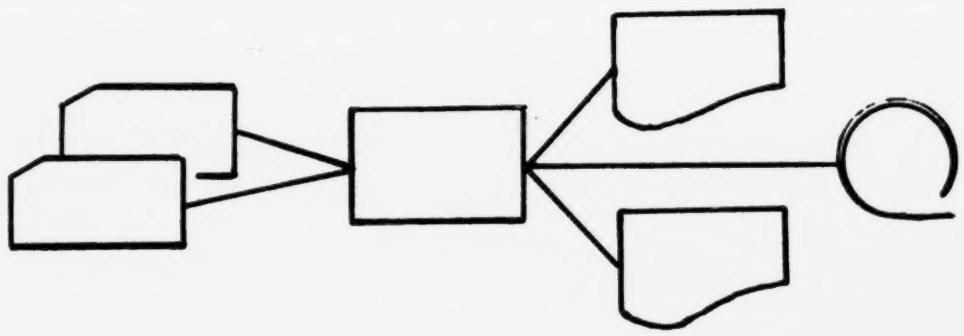
ED 027 571 88 CG 003 578

A Systems Summary Description.
Franklin County Schools, Columbus, Ohio. Area Education Information Center.
Spons Agency-Office of Education (DHEW), Washington, D.C.
Pub Date [68]
Note-58p.
EDRS Price MF-$0.50 HC-$3.00
Descriptors-Attendance Records, Data Processing, Elementary Grades, Grading, *Information Processing, Scheduling, Secondary Schools, *Student Personnel Services, Student Records, *Systems Development

The pupil personnel accounting system developed and used by Ohio's Franklin County schools is presented. Three main areas are described: (1) the construction, use, and maintainence of the student data base; (2) input, school and center processing, and output routines involved in progress reporting, and (3) procedures for dealing with pupil class assignment (scheduling) functions in secondary schools. Examples of materials and outputs obtained are provided. This study was funded under a Title III, Elementary and Secondary Education Act grant. (PS)

DPSC-67-4053
PA-88

A SYSTEMS SUMMARY DESCRIPTION



A TITLE III PROJECT OF THE

AREA EDUCATIONAL INFORMATION CENTER

FRANKLIN COUNTY SCHOOLS, 46 EAST FULTON STREET, COLUMBUS, OHIO 43215

ED 003578

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

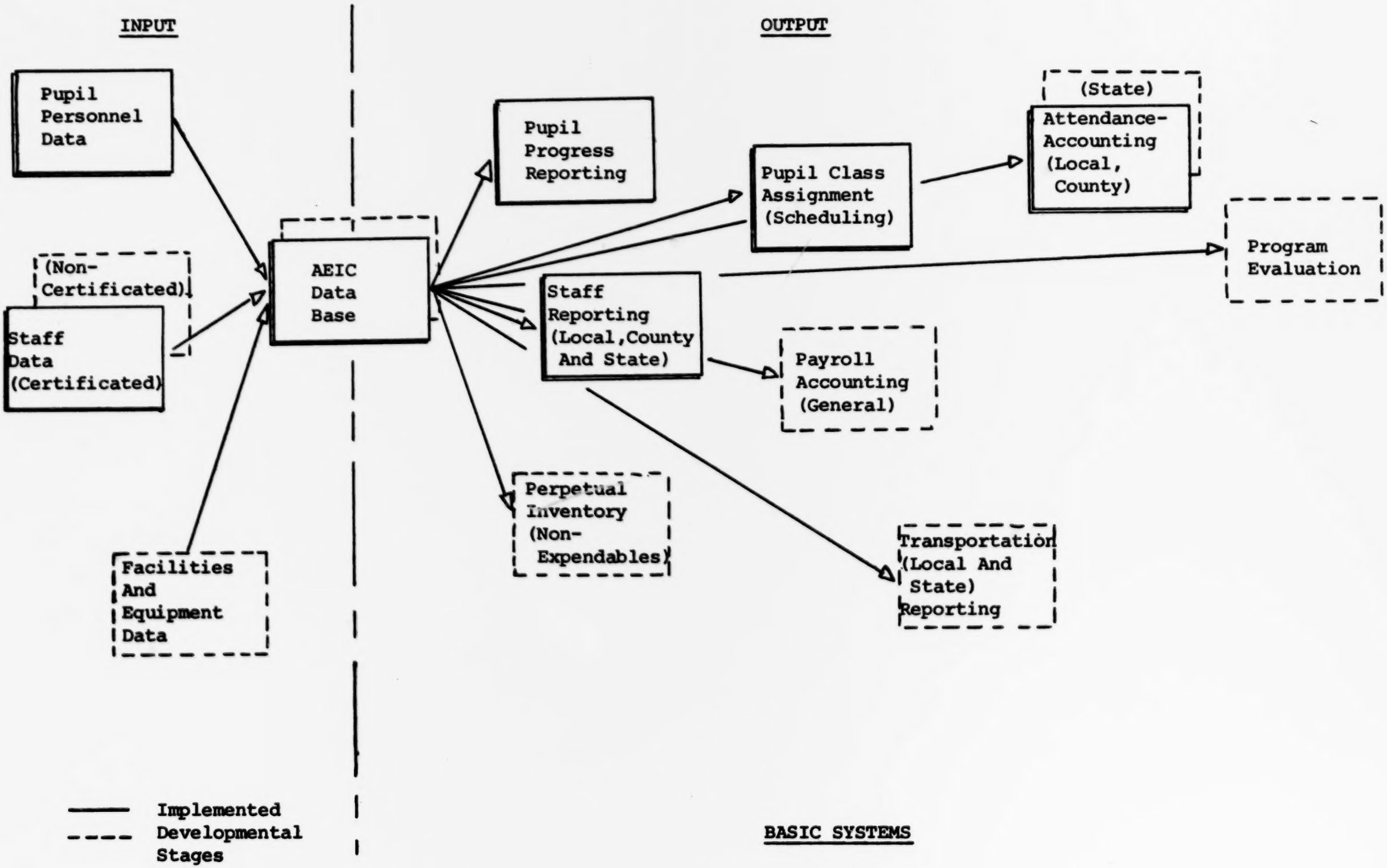
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

A SYSTEMS SUMMARY DESCRIPTION

Quite often during the early stages of operation, we here at the Area Educational Information Center of the Franklin County Schools received requests for literature describing our progress in systems development. Often our response was not what we considered adequate.

In an attempt to provide a fairly comprehensive description, yet one that is not ladened with technical detail, we have assembled this Systems Summary Description which deals only with the pupil personnel accounting systems we employ at present. We do, however, intend to expand upon this summary from time to time to include any and all systems we implement.

We feel that educational data processing has made much progress in a relatively short period of time. We also feel that an exchange of ideas and experiences among educators with common interests in this area is the best vehicle for assuring continued progress in the field. Therefore, we welcome visitations and/or inquiries by all interested parties.



BASIC SYSTEMS

SECTION 1
PUPIL DATA BASE

Collection and Storage of Pupil Master Data for the Data Base

Section I
Pupil Data Base

This section describes the construction, use, and maintenance of the student data base. This base eventually becomes part of the total AEIC Data Base discussed later.

DATA COLLECTION (Modification Pending)*

The necessity for collecting and maintaining complete and accurate basic data for each pupil cannot be overemphasized. Thus, information of this nature, which we will call pupil master data, is held to a minimum, collected by a relatively simple form and read onto magnetic tape via card input. The form utilized for this purpose (6710A) provides space for collecting data for several students on each sheet and is used in both the elementary and secondary systems.

Form 6710A

ITEM	DATA DESCRIPTION
School	Enter the school name as it will appear on all reports such as progress report, schedule, etc.
School Code	Three digit numeric code assigned your building
Student Name	The name of the student should be entered in last, first, middle initial sequence. Legal and not "nicknames" should be entered.
Birth Date	Describe the birthdate in month, day, year sequence. A zero should be placed before single digit dates. Example: May 7, 1959, would be described as Ø5/Ø7/59; December 2, 1960, as 12/Ø2/6Ø, etc.
Parent and/or Guardian Name (Optional)	This data is for optional use by the schools. Enter the name of the head of the household in last, first, and middle initial sequence.
Last Name of Teacher	This data is collected for elementary students only. Secondary schools should omit this item.

COLLECTOR'S SHEET

6710

SCHOOL Anytown High School

1. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.
9/15/49	Jones	James	A	M	Joseph	11	100

TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY	ZIP CODE	
876-1234	5678	Willow Drive	Anytown	60732	

2. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.

TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY	ZIP CODE	

3. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.

TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY	ZIP CODE	

4. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT/GUARDIAN	GRADE	H.R.

TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY	ZIP CODE	

5. BIRTH DATE	STUDENT LAST NAME	FIRST NAME	I	SEX	PARENT GUARDIAN	GRADE	H.R.

TELEPHONE NO.	HOUSE NO.	STREET NAME	CITY	ZIP CODE	

ITEM	DATA DESCRIPTION
Address (Optional)	It is critical that zip code numbers be included for each student.
Telephone Number (Optional)	
Area Code * Sequence Code * (Optional)	Several schools have developed an area-sequence coding system for locating students within an attendance area. If your district utilizes this system, refer to the list of area-sequence codes for your district.
Transportation * (Optional)	Place an "X" in the appropriate block(s) and enter the bus number if applicable.
Place of Employment * Father	After entering the place of employment for the father, "X" the Federally Employed block only when the father is employed at an installation which makes the district eligible for aid under PL 874.
Place of Employment * Mother	(Same as above)

Once all student data are reported on 6710A, the first block of the data base is established on magnetic tape. At this point, only those data items reported on 671ØA are available.

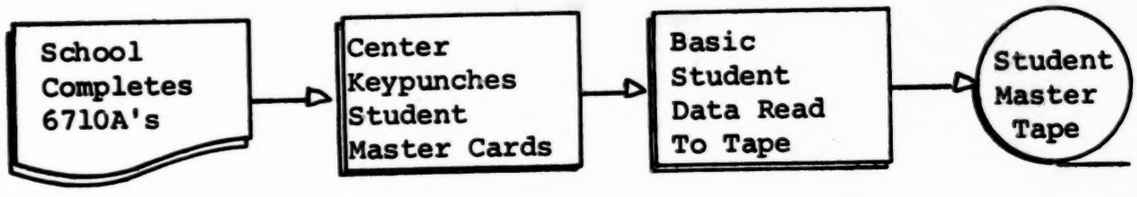


Fig. 1-1 - Beginning Phase of Data Base Construction

UPDATING AND MAINTAINING THE BASE

Assuring that basic data contained in the pupil master data file is accurate, complete, and current is a continual process. Nevertheless, at the beginning of each school year, an update or verification routine is conducted. While this may appear at first to be unnecessary repetition, the effort is more than justified throughout the school year.

ELEMENTARY STUDENT UPDATE

Following the close of school, the elementary principal begins making room assignments for the coming year. This is accomplished through the use of student and teacher master cards.

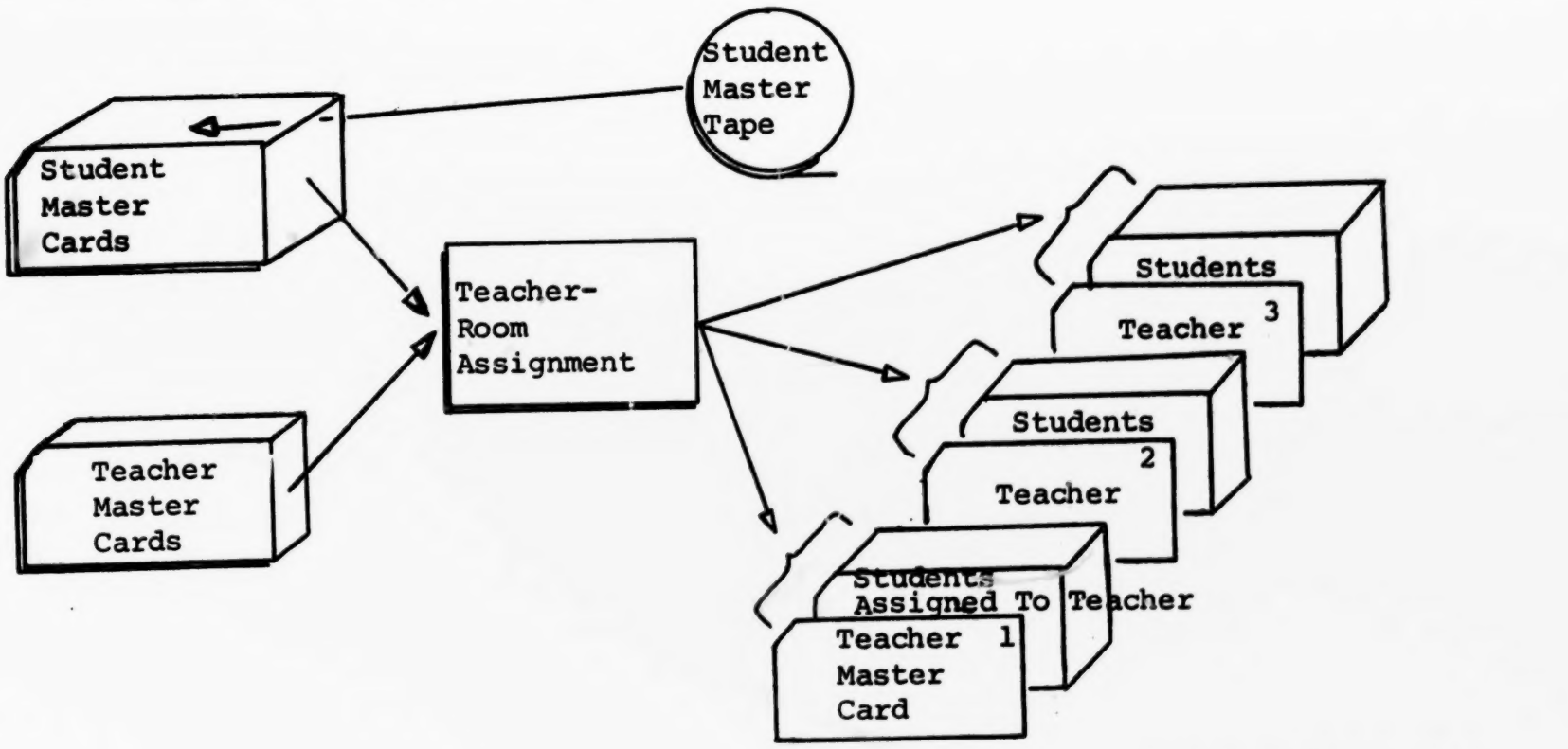


Fig. 1-2 Teacher-Room Assignments For Elementary Pupils

By grouping each student card behind the card of the teacher to which he is assigned for the new school year, the principal physically establishes each class for the coming year. In effect -- scheduling similar to secondary school scheduling.

Concluding this activity, the school returns the grouped cards to the center where they are processed and read back to the student master file for updating.

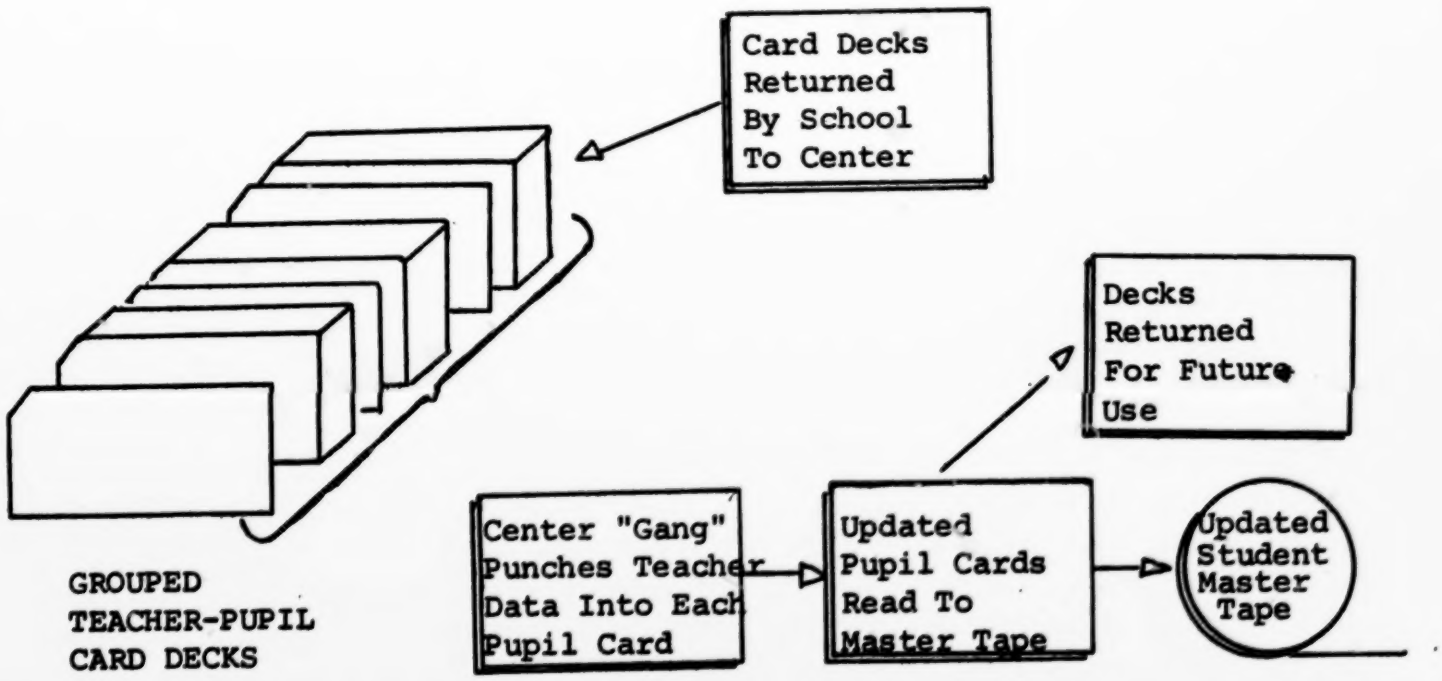

Card Decks Returned By School To Center
Decks Returned For Future Use
GROUPED TEACHER-PUPIL CARD DECKS
Center "Gang" Punches Teacher Data Into Each Pupil Card
Updated Pupil Cards Read To Master Tape
Updated Student Master Tape

Fig. 1-3 - Student Master Tape Update Begins

From the updated master tape, the principal is furnished class rosters, a student directory, and a teacher room list for the new school year. These listings can be computer printed on Ditto Master stock making reproduction in multiple numbers by the school simple and inexpensive.

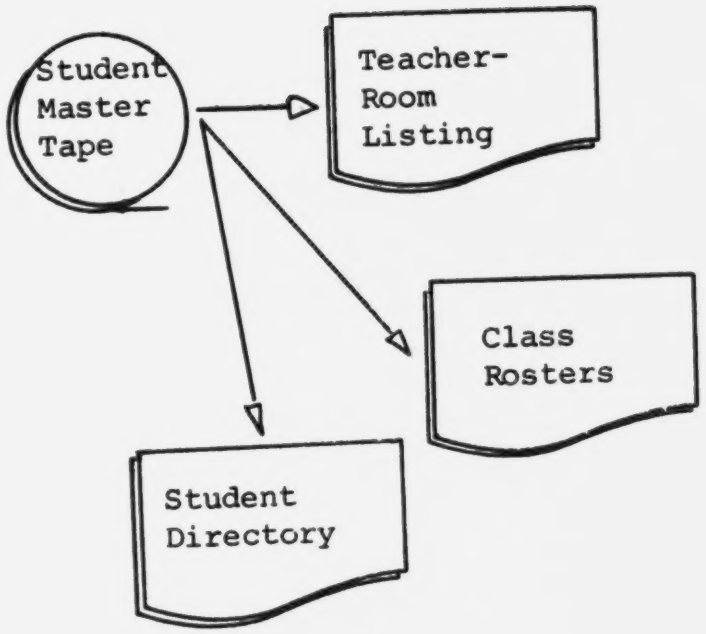


Fig. 1-4 - Listings Supplied Principal

These listings can be provided to the principal in ample time to permit him posting class rosters and publishing such in newspapers before school opens. The teacher-room listing can serve as a "master schedule" or locator file as can class rosters.

To complete the update routine, during the first week of school, the principal should have all teachers review the pupil-master cards with their students and enter any changes or corrections that might be necessary. Such items as address, telephone number, etc., should be carefully checked. After completing this process, only those cards requiring a change or correction should be returned to the center.

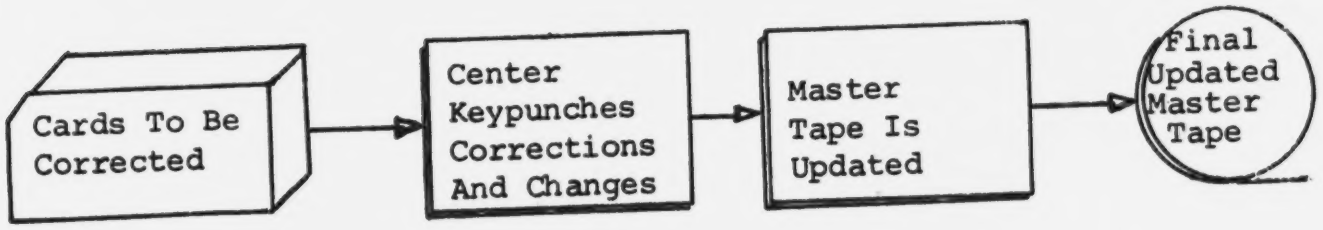


Fig. 1-5 - Final Update Before Progress Reporting Begins

NOTE: An accurate pupil master file is a must before the first reporting period.

SECONDARY STUDENT UPDATE

Since student scheduling provides the student, teacher, and class listings necessary for opening the school year, an update or verification of the student master file is not conducted until the third or fourth week of school. Following the conclusion of the scheduling routine, the student master cards will be returned to the school for this purpose. Once the schedule has "settled down" for the year (student schedule adjustments made, teacher assignments modified, etc.), preparations for the "X-Day routine should begin. Basically this consists of the following two activities:

1. Reviewing student master cards and denoting any changes.
2. Complete Form 6720 (Subject Teacher Report).

(Note: Schools which do note utilize computer scheduling would follow the procedure for updating described in for the elementary schools. "X-DAY" would be conducted in the same manner as for those schools utilizing computer scheduling.)

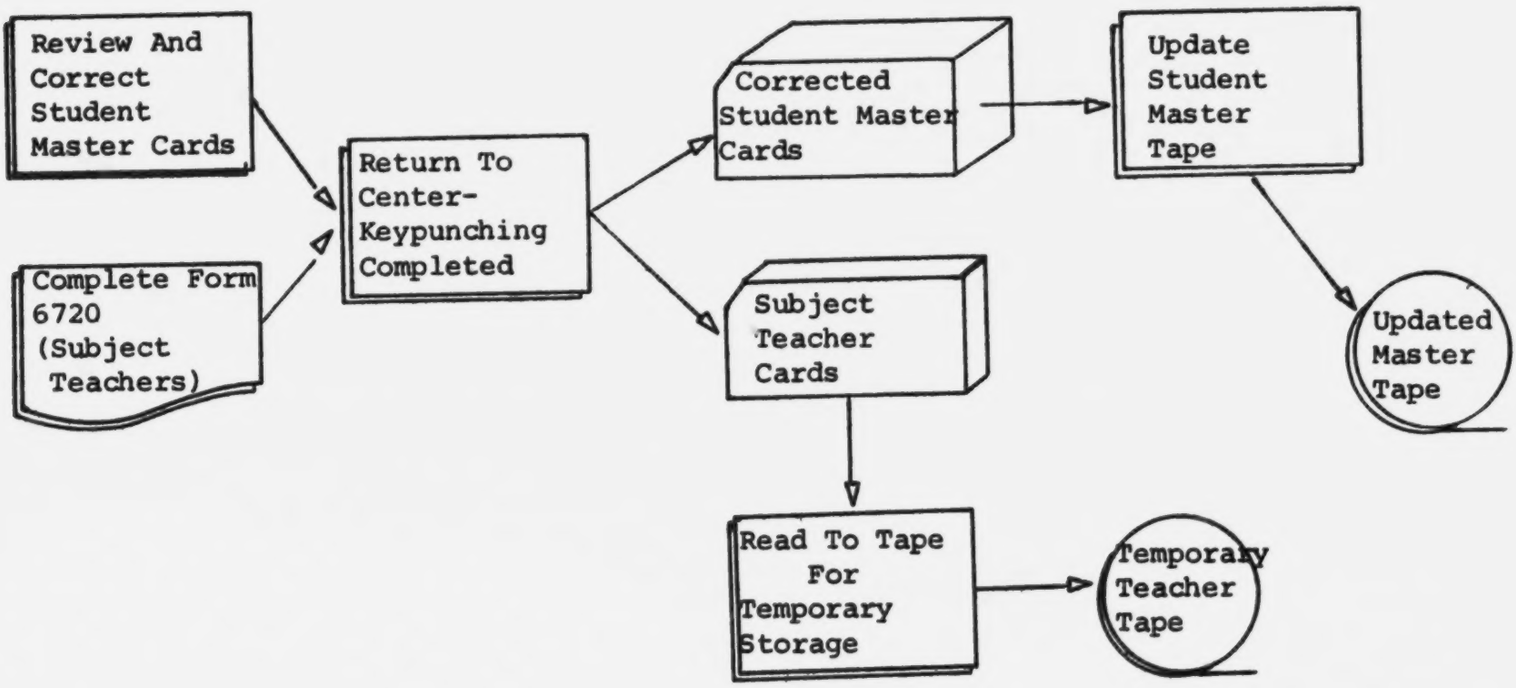

Review And Correct Student Master Cards
Complete Form 6720 (Subject Teachers)
Return To Center- Keypunching Completed
Corrected Student Master Cards
Subject Teacher Cards
Update Student Master Tape
Updated Master Tape
Read To Tape For Temporary Storage
Temporary Teacher Tape

Fig. 1-6 - Updating of Secondary Master File

To prepare the school for "X-DAY", the center, from the master tape, produces ten (10) student "X-DAY" cards. These, along with the subject teacher cards are returned to the school. Student cards are returned in alpha-homeroom order and teacher cards alpha-teacher order. Each teacher and student receives their cards in homeroom on "X-DAY" morning. The following routine (X-DAY) is then executed.

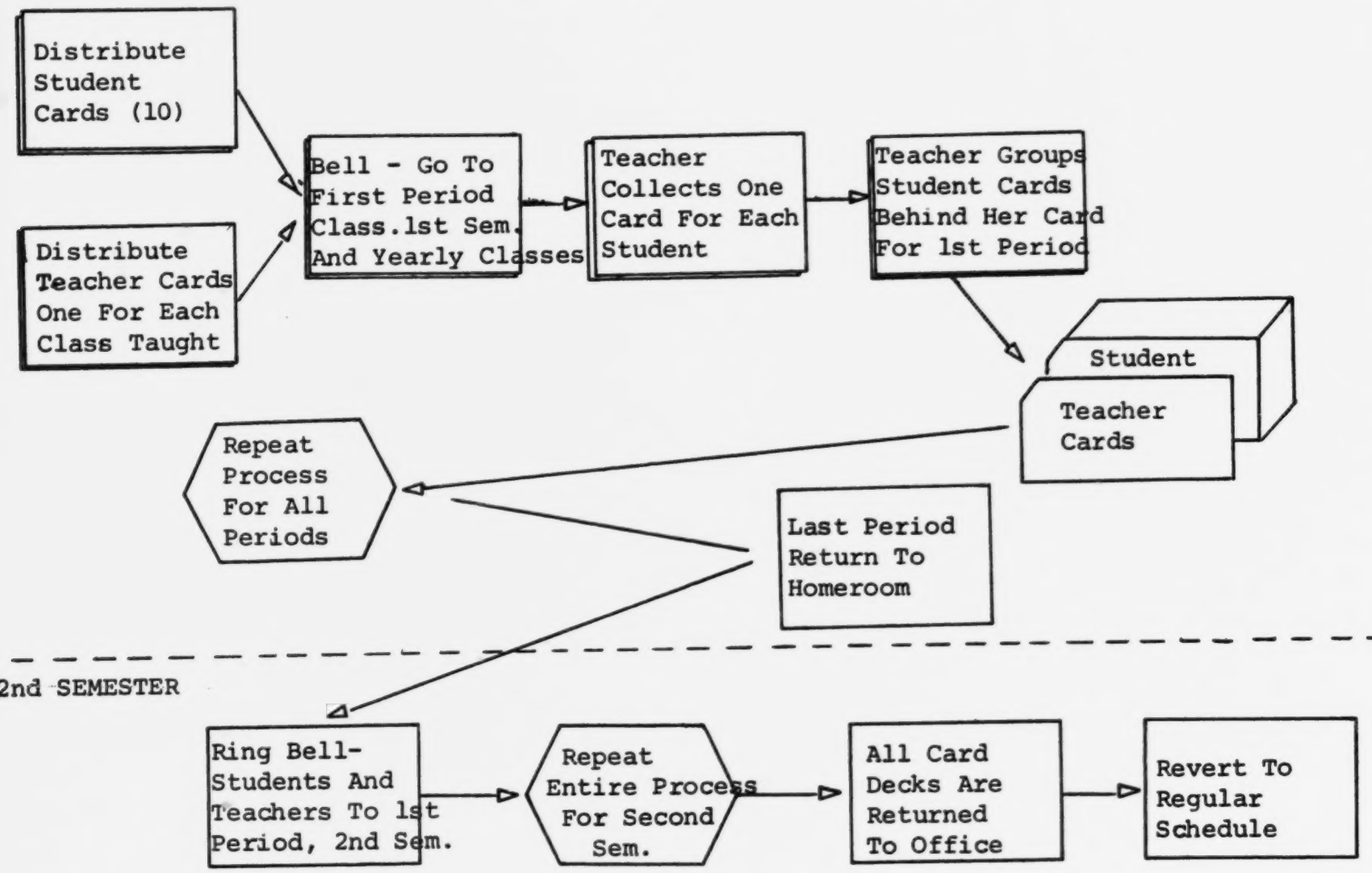

FOR CLASSES MEETING 1st SEMESTER AND/OR ALL YEAR
Distribute Student Cards (10)
Distribute Teacher Cards One For Each Class Taught
Bell - Go To First Period Class. 1st Sem. And Yearly Classes
Teacher Collects One Card For Each Student
Teacher Groups Student Cards Behind Her Card For 1st Period
Student Teacher Cards
Repeat Process For All Periods
Last Period Return To Homeroom
2nd SEMESTER
Ring Bell- Students And Teachers To 1st Period, 2nd Sem.
Repeat Entire Process For Second Sem.
All Card Decks Are Returned To Office
Revert To Regular Schedule

Fig. 1-7 - Secondary "X-Day" Routine

Once all card decks have been returned to the office, the office inserts cards for absentees into the proper decks and returns all decks to the center. All student "X-DAY" cards not used may be retained at the school and disposed of as the school sees fit.

Upon receiving the grouped "X-DAY" decks, the center processes them for reading into the student master files.

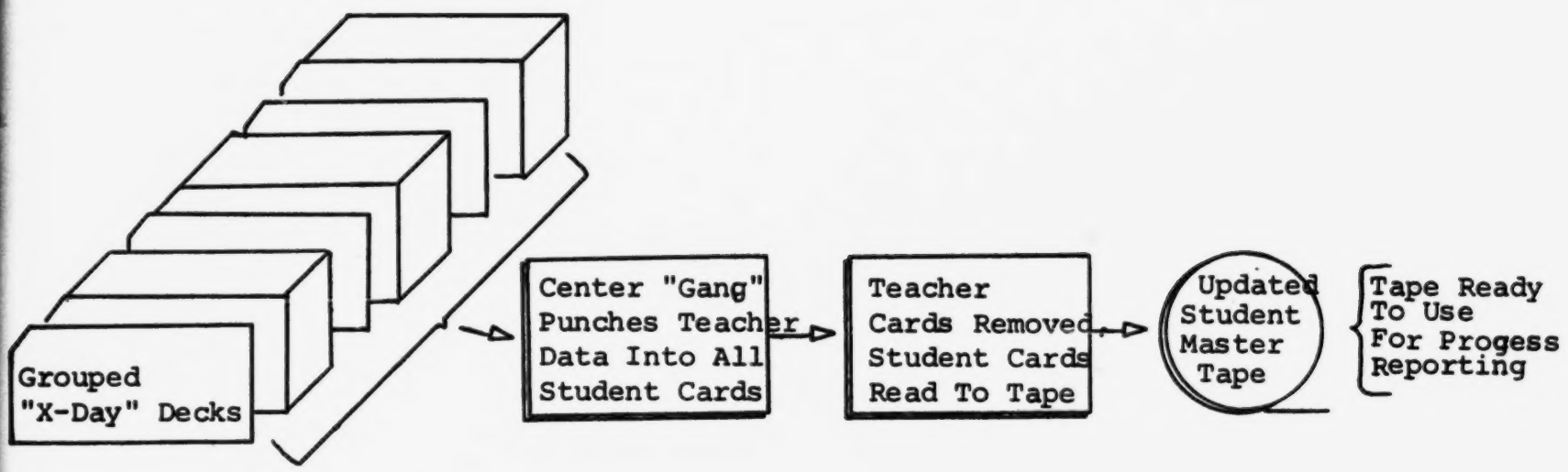


Fig. 1-8 - Processing "X-DAY" Cards

The "X-DAY" routine outlined above is merely a suggested system. Various schools employ variations to this which are quite effective. Such variations are left to school preference. However, it is highly recommended that second semester "X-DAY" be held in conjunction with that for 1st semester and annual classes. Experience has shown that attempting a second "X-DAY" after the second semester has opened creates some problems.

With the conclusion of the "X-DAY" routine and the final up-date, the pupil data base is considered finalized for production of the first progress reporting period.

SECTION 2
PUPIL PROGRESS REPORTING

Pupil Progress Reporting and Accounting Systems

The pupil progress reporting system employed by the Area Educational Information Center is designed to accommodate a wide and varied selection of grading and attendance systems. At present, the center has the capability of dealing with the following situations, or a combination of such:

1. Secondary and/or elementary
2. Six and/or nine-week periods
3. All alphabetic, all numeric, or an alpha-numeric grading system
4. Up to 28 "evaluation areas" for elementary students
5. Up to 12 subject areas for secondary students (More may be accommodated. However, a second grade card is produced if this number is exceeded.)
6. Public, private, city, exempted village, and vocation systems. (The center does work for at least one of all systems listed above.)

This section defines input, school and center processing, and output routines involved in progress reporting. Since some 60,000 plus student progress reports for 13 independently operated school systems are produced each period, it would be impossible to discuss each individual situation. However, since all basic procedures are indentical, some of the more versatile systems are discussed and used as examples in this section.

TEACHER PREPARED INPUT

For the sake of convenience and speed, optical reading is employed by the center for all input to the system. Utilizing a Digitek 100 (tape output) System, the center prepares pre-printed marking sheets which the teacher uses to report student progress to the system.

While the format of the elementary grade sheet differs from that of the secondary grade sheet, the preparation is much the same. The following chart explains the basic differences:

ELEMENTARY	SECONDARY
1. Sheets are printed in alpha-room-teacher sequence	1. Sheets are printed in alpha-subject-teacher (and semester for one one semester courses) sequence.

ELEMENTARY	SECONDARY
2. Each sheet contains the names of six students. Thus the average teacher receives five or six sheets each period.	2. Each sheet contains the names of all students in one class (each period) unless the class exceeds thirty students. In this situation, the class would require two sheets.
3. The teacher receives two sets of sheets for the final period- one for the last grading period and one for the yearly average or final grade.	3. No difference at the close of the school year. Last period and final grades are marked on the same sheet.

Fig. 2-1 - Variation in Systems

Attendance for both elementary and secondary is reported on the same sheet. Format does not differ. The sequence in which the sheets are produced for marking, however, differs according to the specifications of each school. For example, attendance sheets may be printed for marking alpha-by school, alpha-by grade, alpha-by grade-by homeroom, etc. The variations are almost unlimited.

PRODUCING THE SHEETS FOR MARKING

Utilizing the Updated Student Master Tape described in Section I, the center generates pre-printed sheets for marking as illustrated by Fig. 2-2, 2-3, and 2-4. Each sheet contains a Printer-Line Compatable (PLC) grid into which a school number, page number, and grading period "slug" is printed. This grid is used in sorting and editing routines after the marked sheets are returned to the center.

Certain identification information is also printed at the top of each sheet. Each student assigned to a teacher for instruction will be listed on the appropriate sheet.

SUBJECT: HIST | SUBJECT CODE: 122 | TEACHER NAME: HUSARIK | TEACHER CODE: 424

ROOM: | PERIOD TAUGHT: 01 | SEMESTER CODE: 3 | CREDIT: | GRADING PERIOD: 6 | SCHOOL CODE: 853

PAGE

PERIOD

SCHOOL

INSTRUCTIONS:

1. Use pencil only for marking. 2. Do not add names to list. 3. Completely fill the mark position you are marking. 4. Erase completely marks you wish to change. 5. Contact the school office with questions you may have.

STUDENT	GRADES THIS PERIOD	PLUS OR MINUS	EFFORT GRADE	EXAMINATION	AVERAGE	FINAL	PREVIOUS GRADES
[redacted], THOMA							CCB CCC
[redacted], LYN							CBA BCB
[redacted], MELIN							BBB BCB
[redacted], SCOTT							CCB CCB
[redacted], RIC							FCC CCB
[redacted], MARJOR							DCB CDC
[redacted], GART							DCC CCC
[redacted], ROB							CBB BBB
[redacted], LAVIN							CBC CCC
[redacted], SANDRA							CBB BCB
[redacted], TERRY							CBC CCC
[redacted], JEFF							AAA AAA
[redacted], LAU							AAA AAB
[redacted], EILEE							BBB BBA
[redacted], GEOF							CCB CDC
[redacted], WI							DCC CCC
[redacted], THOMAS							FCD DDC
[redacted], JOHN							DBB CCC
[redacted], KAT							CBC CBC
[redacted], ANIT							AAA ABB
[redacted], SHARIE							CCB CCD
[redacted], PAME							CCC CDC
[redacted], DIAN							BAA BBA
[redacted], DE							CBB BCB
[redacted], JAMES							CCB CBA
[redacted], R							CBA BCB
[redacted], AARON							CBB BBB
[redacted], NANCY							BCB BBB
[redacted], KRISTI							BCC CCD
[redacted], SUS							CBC CCD
[redacted], GREG							CBB BBB

D - 2696

FRANKLIN COUNTY SCHOOLS
COLUMBUS, OHIO

SECONDARY GRADE SHEET

Fig. 2-2 - Typical Secondary Sheet As Received By Teacher

TEACHER BITTNER | TEACHER CODE | GRADE LEVEL KG | ROOM 125A | SCHOOL CODE 412

GRADING PERIOD 1

DUNLOE ELEMENTARY

PAGE NO. 073

PAGE | ID SCHOOL

INSTRUCTIONS:

1. Use pencil only for marking. 2. Do not add names to list. 3. Completely fill the mark position you are marking. 4. Erase completely marks you wish to change. 5. Contact the school office with questions you may have.

STUDENT'S NAME	GRADES THIS PERIOD		
BALL, PATTY A	READING A B C D F LANGUAGE HANDWRITING A B C D F SPELLING ARITHMETIC A B C D F SCIENCE AND HEALTH SOCIAL STUDIES A B C D F GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR	READING LEVEL ART MUSIC PHYSICAL EDUCATION	EFFORT CONDUCT CLASS PARTICIPATION CREATIVITY GENERAL ATTITUDE 1 2 SOCIAL HABITS STUDY HABITS AND WORK SKILLS 1 2 3
BARNETTE, MARY L	READING A B C D F LANGUAGE HANDWRITING A B C D F SPELLING ARITHMETIC A B C D F SCIENCE AND HEALTH SOCIAL STUDIES A B C D F GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR	READING LEVEL ART MUSIC PHYSICAL EDUCATION	EFFORT 1 2 3 CONDUCT CLASS PARTICIPATION 1 2 3 CREATIVITY GENERAL ATTITUDE 1 2 3 SOCIAL HABITS STUDY HABITS AND WORK SKILLS 1 2 3
BLEDSOE, LAURA K	READING A B C D F LANGUAGE HANDWRITING A B C D F SPELLING ARITHMETIC A B C D F SCIENCE AND HEALTH SOCIAL STUDIES A B C D F GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR.	READING LEVEL ART MUSIC PHYSICAL EDUCATION	EFFORT 1 2 3 CONDUCT CLASS PARTICIPATION 1 2 3 CREATIVITY GENERAL ATTITUDE 1 2 3 SOCIAL HABITS STUDY HABITS AND WORK SKILLS 1 2 3
DUNCAN, GREGORY A	READING A B C D F LANGUAGE HANDWRITING A B C D F SPELLING ARITHMETIC A B C D F SCIENCE AND HEALTH SOCIAL STUDIES A B C D F GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR	READING LEVEL ART MUSIC PHYSICAL EDUCATION	EFFORT 1 2 3 CONDUCT CLASS PARTICIPATION 1 2 3 CREATIVITY GENERAL ATTITUDE 1 2 3 SOCIAL HABITS STUDY HABITS AND WORK SKILLS 1 2 3
EDMONDS, HAROLD J	READING A B C D F LANGUAGE HANDWRITING A B C D F SPELLING ARITHMETIC A B C D F SCIENCE AND HEALTH SOCIAL STUDIES A B C D F GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR	READING LEVEL ART MUSIC PHYSICAL EDUCATION	EFFORT 1 2 3 CONDUCT CLASS PARTICIPATION 2 3 CREATIVITY GENERAL ATTITUDE 1 2 3 SOCIAL HABITS STUDY HABITS AND WORK SKILLS 2 3
FORRY, MICHAEL A	READING A B C D F LANGUAGE HANDWRITING A B C D F SPELLING ARITHMETIC A B C D F SCIENCE AND HEALTH SOCIAL STUDIES A B C D F GRADE ASSIGNMENT FOR NEXT SCHOOL YEAR.	READING LEVEL ART MUSIC PHYSICAL EDUCATION	EFFORT 1 2 3 CONDUCT CLASS PARTICIPATION 1 2 3 CREATIVITY GENERAL ATTITUDE 1 2 3 SOCIAL HABITS STUDY HABITS AND WORK SKILLS 1 2 3

FRANKLIN COUNTY SCHOOLS
COLUMBUS, OHIO

ELEMENTARY GRADE SHEET (County)

DC 2698

Fig. 2-3 - Typical Secondary Sheet As Received By Teacher

HOMEROOM NO. 007 TEACHER GRADING PERIOD 6

DISTRICT CODE 300 SCHOOL LINCOLN JR HIGH CODE 301

PAGE

ID SCHOOL

INSTRUCTIONS:

1. Use pencil only for marking. 2. Do not add names to list. 3. Completely fill the mark position you are marking. 4. Erase completely marks you wish to change. 5. Contact the school office with questions you may have.

STUDENT'S NAME	DAYS PRESENT	DAYS ABSENT	TIMES TARDY
ARCHER, LARRY G	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
CHANEY, JAMES E	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
CRITES, DAVID F	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
DOBKINS, CHARLES L	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
FLANNERY, RICKY	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
HIMES, DONALD R	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
HIPPS, TOM L	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
HOJNACKI, WAYNE	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
HOLMES, MARK	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
JARVIS, CHRISTOPH	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
KELLEY, DAVID L	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
MAHAN, DAVID L	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
PARSONS, JERRY W	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
PLACE, DANNY	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
REICH, STEVEN	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
SCHNELL, JAMES	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
SINDEL, JEFFREY L	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
SMITH, JOHN M	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
SULLIVAN, TERRY	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	
	0 10 20 30 40 50 60 70 80 90	0 10 20 30 40 50 60 70 80 90	

(In many schools, these sheets are maintained and marked in the school office by an attendance clerk.)

DC 2701

FRANKLIN COUNTY SCHOOLS
COLUMBUS, OHIO

Fig. 2-4 - Typical Attendance Sheet As Received By School

ATTENDANCE SHEET

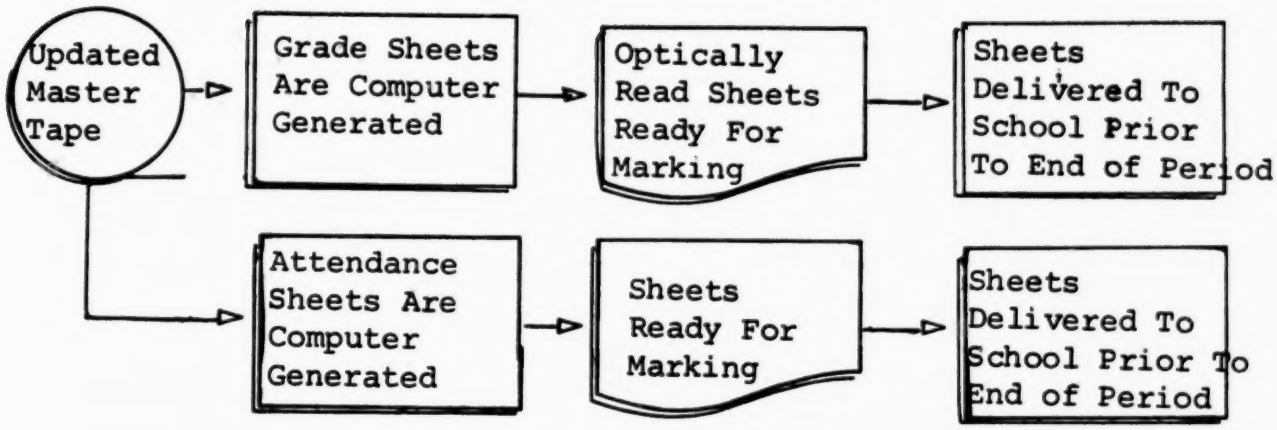

Updated Master Tape
Grade Sheets Are Computer Generated
Optically Read Sheets Ready For Marking
Sheets Delivered To School Prior To End of Period
Attendance Sheets Are Computer Generated
Sheets Ready For Marking
Sheets Delivered To School Prior To End of Period

Fig. 2-5 - Preparation of Input For Teacher Marking

TEACHER PREPARATION OF INPUT

Once received by the teachers, each student's grades are recorded on the optical scanning sheets beside of his name. Marks are recorded with an ordinary No. 2 pencil. Since the Digitek 100 can descriminate between the intensity of two or more marks and select the darkest, eraser marks do not effect reading providing a correct mark is re-entered to take the place of the incorrect mark which has been removed.

During the time that the sheets are in the possession of the school, extreme care should be exercised in handling. Dirt, smudges, and "stray" pencil marks can cause misreads. Torn and "dog-eared" sheets can "jam" the reader.

Once sheets are marked and ready for processing, the following must receive consideration by those reponsible within the district.

1. All sheets for each school within the district must be returned before processing can begin for the district.
2. Sheets marked by new teachers and teachers who have experiences some difficulty should be "spot" checked for proper marking.

PROCESSING GRADE-ATTENDANCE DATA

Upon receiving the teacher marked sheets from a district, the center proceeds with the processing which eventually results in printed progress reports and various other reports and listings provided the schools. The first step involves reading the marked sheets.

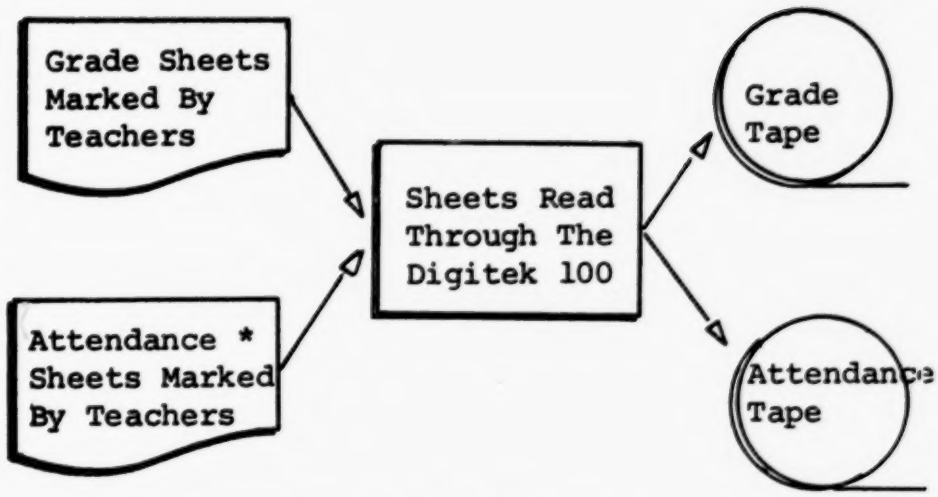

Grade Sheets Marked By Teachers
Attendance * Sheets Marked By Teachers
Sheets Read Through The Digitek 100
Grade Tape
Attendance Tape

Fig. 2-6 - Teacher Marked Sheets Converted To Tape

As the sheets are passed through the Optical Scanner, all marks are read and tapes are created for use in processing. After completing the reading operation, the tapes created from this operation are used in updating student files for the district.

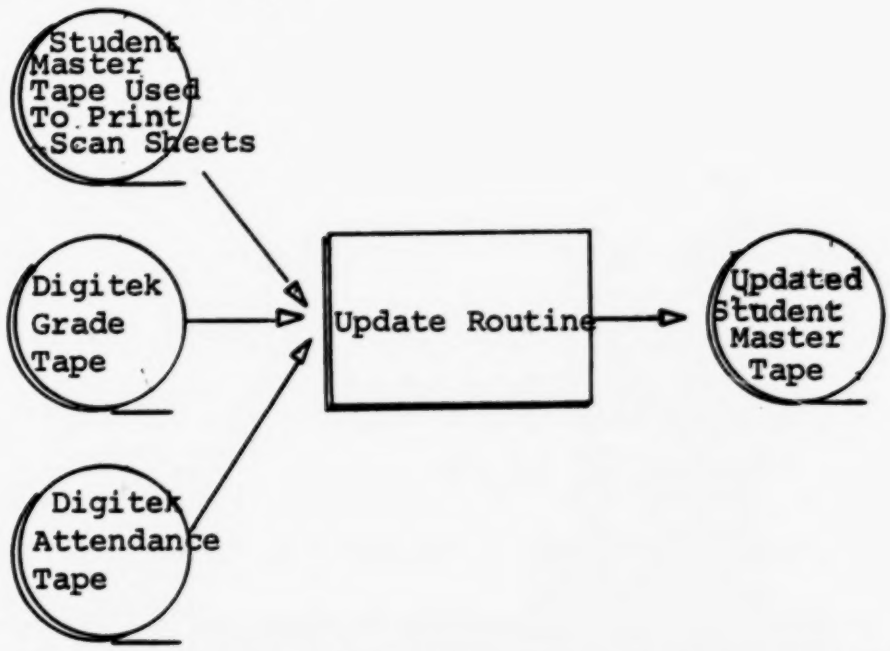

Student Master Tape Used To Print Scan Sheets
Digitek Grade Tape
Digitek Attendance Tape
Update Routine
Updated Student Master Tape

Fig. 2-7 - Updating of Master File For Progress Report Production

Using the updated master tape described above, progress reports and all other related listings and reports can be produced. A simplified description is illustrated below.

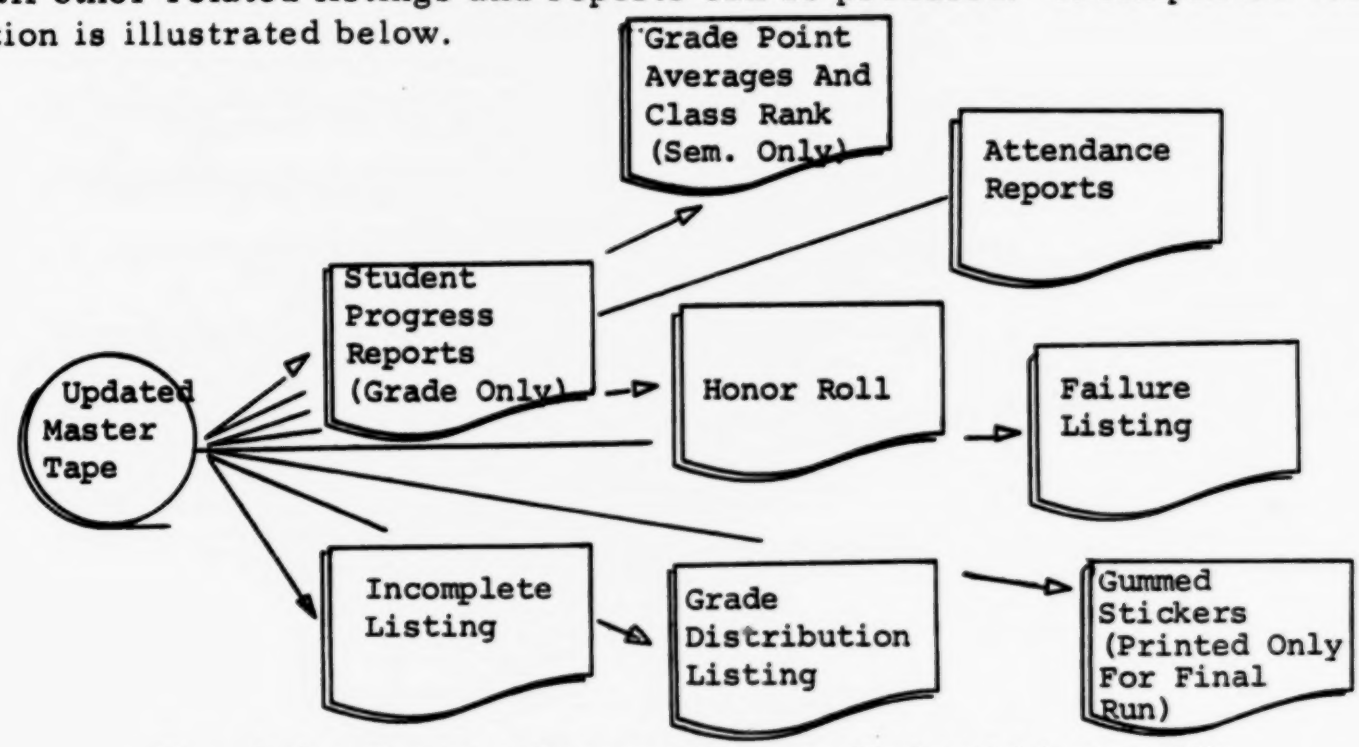


Fig. 2-8 - Reports Generated From Updated Master File

Comment is occasionally made by a teacher or administrator to the effect that it is as simple and easy to place a mark on a conventional grade card as it is to code it on a scan sheet. Considering that task alone and disregarding any and all other uses of the "mark," this is a valid observation. However, an evaluation of the entire process based upon this one phase of the overall Pupil Personnel System is meaningless. To develop a true appreciation of the effective use of the teacher prepared sheets, an analysis of all related reports (as well as the actual progress report or "grade card") must be made.

Student Progress Report

This report, produced as the first in the series of reports each grading period, is provided in multiple copies. Thus, in most cases, the student is not required to return his copy to the school. The report is also accumulative in nature meaning that all grades from previous periods appear on the report each time.

LINCOLN JUNIOR HIGH
TELEPHONE: 471-2633
MARSHALL CUPP PRINCIPAL

FRANKLIN COUNTY SCHOOLS
COLUMBUS, OHIO

PROGRESS REPORT - JUNIOR & SENIOR HIGH SCHOOL

I.D. NUMBER	STUDENTS NAME	SEX	GRADE	HOMEROOM	SCHOOL CODE	SCHOOL YEAR
[redacted]	[redacted], NANCY L	F	07	006	301	67 68

SUBJECT	TEACHER	1 ACH	1 EFF	2 ACH	2 EFF	3 ACH	3 EFF	SEM. EXAM	SEM. AVG	4 ACH	4 EFF	5 ACH	5 EFF	6 ACH	6 EFF	SEM. EXAM	SEM. AVG	YEAR FINAL	CREDIT
GEN MUS	BARR			A	1					A	1			A	1			A	
G P E 7	KISSEL			B	2					C	2			C	2			C	
SPELL 7	FAUKHAU	A	2	A	2	B	2			A	2	B	2	B	2			A	
ENG 7	FAUKHAU	A	2	B	2	A	2			B	2	B	2	C	2			B	
O WRLD H	FAUKHAU									B	2	B	2	C	2			B	
GEOG	FAUKHAU	B	2	C	2	C	2			B	2	C	2	C	2			C	
SCI 7	CALLAHA	C	2	C	2	C	2			C	3	D	3	C	2			C	
MATH 7	CALLAHA	C	2	B	2	B	2			C	3	B	2	C	2			C	
ORCH	KESSLER			A	1					A				A			A	A	
ART 7	DRUMMON			C	2					B	2			C	2			C	
GRADE POINT AVERAGE								[redacted]								[redacted]			

ATTENDANCE	THIS PERIOD	TO DATE
DAYS PRESENT	20.0	171.5
DAYS ABSENT	4.0	8.5
TIMES TARDY		

LETTER ENCLOSED ☐
CONFERENCE REQUESTED BY:
PARENTS ☐ TEACHER ☐

FRED M DANIEL
COUNTY SUPERINTENDENT OF SCHOOLS

Fig. 2-9 - Secondary Progress Report Illustrating Alphabetic Ahievement Marks

Secondary systems have been developed to accomodate both alphabetic and numeric systems and a combination of each. Plus (+) and minus (-) marks are an option of the system. The report in Fig. 2-9 illustrates the use of alphabetic grades for academic achievement and numeric grades for effort. Fig. 2-10 illustrates the use of numeric grades for academic achievement and alphabetic grades for conduct.

BISHOP READY HIGH SCHOOL
REV R J ENDRES
TELEPHONE: 276-5263

DIOCESE OF COLUMBUS
COLUMBUS, OHIO
PROGRESS REPORT - JUNIOR AND SENIOR HIGH SCHOOL

I.D. NUMBER	STUDENT NAME	PARISH CODE	SEX	GRADE	HOMEROOM	SCHOOL CODE	SCHOOL YEAR
100702	[redacted] RICHARD L	175	M	10	124	105	67-68

SUBJECT	TEACHER	ACH	C-E	ACH.	C-E	SEM EXAM	SEM AVG
ENG 2	ANTHONY	71	U	76	U		
L RLGN 2	CIOTOLA	85	W	85	W		
BIO	DOHERTY	72	E	76	G		
PL SD G	DENNIS	71	S	71	W		
M DRAW 1	ROBB	77	G	75	G		
ART 1	SUSAN M	80	G	88	G		
CHOIR	CLARETT						
B P E 1	WONDERL	85	S	98	E		

SUBJECT	TEACHER	ACH	C-E	ACH	C-E	SEM EXAM	SEM AVG	YEAR FINAL	CREDIT

GRADE POINT AVERAGE

ATTENDANCE	THIS PERIOD	TO DATE
DAYS PRESENT	45.0	89.0
DAYS ABSENT	02.0	03.0
TIMES TARDY		

MSGR B C APPLEGATE
SUPERINTENDENT OF SCHOOLS

LETTER ENCLOSED ☐
CONFERENCE REQUESTED BY

Fig. 2-10 - Secondary Progress Report Illustrating Numeric Achievement Marks

A brief analysis of the format of the secondary progress report shows the school district name preprinted in the upper right corner of the form, the building name, principal name, and telephone number computer printed in the upper left corner. Student identification data follows. Each subject, subject teacher, and grade is printed on the form by grading period. Attendance data are shown in both period and to-date form. The space (optional) for indicating "letter enclosed," "conference requested," etc., is marked

by the teacher if so desired. A typical example of the reverse side of the progress report form is illustrated in Fig. 2-11.

MESSAGE TO PARENTS

This report is sent to you regularly so that you may study your child's progress in school. Close cooperation between the home and school is necessary to the success of the educational process. By this report, we attempt to interpret to you how your child is responding to the basic aims of the school. We feel that no report form can show the complete development of your child. Therefore, we extend a cordial invitation to you to visit school and confer with the teacher concerning your child's work.

EXPLANATION OF GRADES

A — EXCELLENT	I — INCOMPLETE
B — ABOVE AVERAGE	W — WITHDRAWN
C — AVERAGE	E — OUTSTANDING
D — BELOW AVERAGE	S — SATISFACTORY
F — FAILURE - NO CREDIT	U — UNSATISFACTORY

TEACHER COMMENTS:

PARENT COMMENTS:

Your signature on this card does not necessarily mean that you approve of your child's record. It only indicates that you have seen the card.

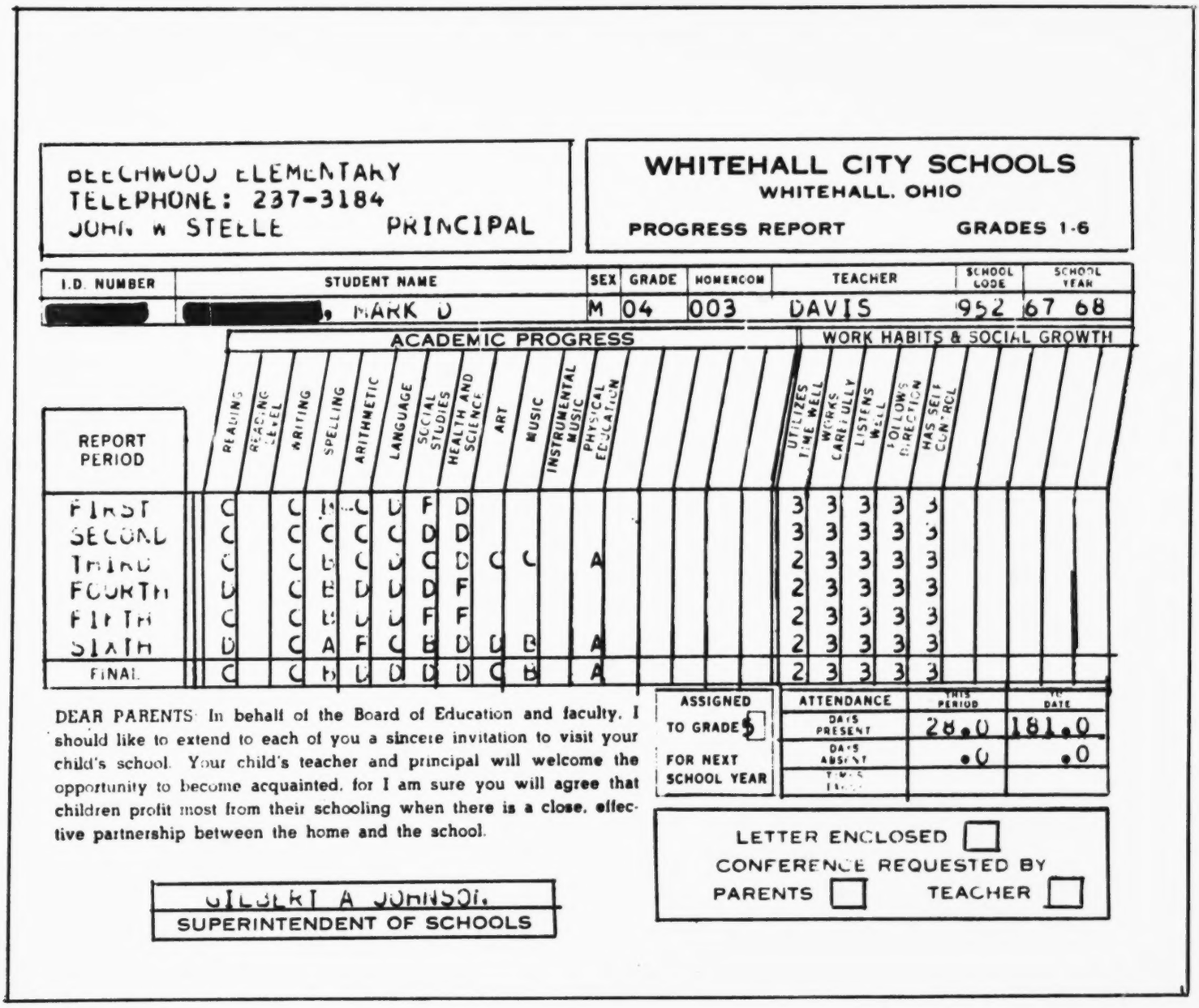
SIGNATURE OF PARENT WHEN REQUIRED

672-A

Fig. 2-11 - Typical Example of Reverse Side of Progress Report

In most cases, an explanation of grades, a brief message to parents, and a space for comments appear on this side of the form. However, composition to some extent can vary according to the wishes of the school system.

Elementary systems vary somewhat from the secondary systems. In this situation, the teacher is concerned with giving several grades to one student and elective courses or subjects are not involved. The elementary teacher is also given the capability of awarding alphabetic and numeric grades. All other features of the system are the same as that of the secondary system with the added capability of indicating promotions at the end of the school year.



BEECHWOOD ELEMENTARY
TELEPHONE: 237-3184
JOHN W STEELE PRINCIPAL

WHITEHALL CITY SCHOOLS
WHITEHALL, OHIO
PROGRESS REPORT GRADES 1-6

I.D. NUMBER	STUDENT NAME	SEX	GRADE	HOMEROOM	TEACHER	SCHOOL CODE	SCHOOL YEAR
[redacted]	[redacted], MARK D	M	04	003	DAVIS	952	67 68

REPORT PERIOD	ACADEMIC PROGRESS: READING	READING LEVEL	WRITING	SPELLING	ARITHMETIC	LANGUAGE	SOCIAL STUDIES	HEALTH AND SCIENCE	ART	MUSIC	INSTRUMENTAL MUSIC	PHYSICAL EDUCATION	WORK HABITS & SOCIAL GROWTH: UTILIZES TIME WELL	WORKS CAREFULLY	LISTENS WELL	FOLLOWS DIRECTION	HAS SELF CONTROL
FIRST	C		C	[illegible]	C	C	F	D					3	3	3	3	3
SECOND	C		C	C	C	C	D	D					3	3	3	3	3
THIRD	C		C	C	C	C	C	D	C	C		A	2	3	3	3	3
FOURTH	D		C	E	D	C	D	F					2	3	3	3	3
FIFTH	C		C	E	C	C	F	F					2	3	3	3	3
SIXTH	D		C	A	F	C	E	D	D	B		A	2	3	3	3	3
FINAL	C		C	A	C	D	D	D	C	B		A	2	3	3	3	3

DEAR PARENTS: In behalf of the Board of Education and faculty, I should like to extend to each of you a sincere invitation to visit your child's school. Your child's teacher and principal will welcome the opportunity to become acquainted, for I am sure you will agree that children profit most from their schooling when there is a close, effective partnership between the home and the school.

GILBERT A JOHNSON
SUPERINTENDENT OF SCHOOLS

ASSIGNED TO GRADE 5 FOR NEXT SCHOOL YEAR

ATTENDANCE	THIS PERIOD	TO DATE
DAYS PRESENT	28.0	181.0
DAYS ABSENT	.0	.0
TIMES TARDY		

LETTER ENCLOSED ☐
CONFERENCE REQUESTED BY
PARENTS ☐ TEACHER ☐

Fig. 2-12 - Typical Elementary Progress Report

Each elementary form contains spaces for six grading periods and a final grade. Many districts utilize the nine-weeks grading system. Therefore, only the first four and final areas on the report are used.

One limitation of the elementary form, as illustrated in Fig. 2-12 above is the number of grades or "marks" a teacher may utilize in reporting progress. It will be noted that no more than 27 grades or marks may be given each period. These may be either alphabetic or numeric. Plus (+) and/or minus (-) marks cannot be given at the elementary level. This feature is optional in the secondary system.

Like the secondary form, the elementary progress report comes in multiple copy. One carbon copy is standard with the elementary form

Related Reports

Following production of all grade reports for all districts, reports related to grading and attendance (pupil accounting) are produced. Examples typical of such are shown in Figures 2-13 through 2-19 on the following pages.

The Attendance Report, illustrated in Figure 2-13 is provided as a summary for use by the superintendent, principal, and attendance personnel. The report lists attendance for each individual for the period indicated, shows a boy-girl total by grade level for the period, gives the current total for the period by grade level, and provides a current, previous year-to-date, and current year-to-date attendance total by school. Totals appearing on the last page of the summary are utilized by administrative and attendance personnel in completing various state, county, and/or local reports. Routine computations by school personnel can be done to arrive at attendance averages and percentages. Plans are to develop a system in the near future to furnish all such calculations.

Since this summary is provided in three copies, it is highly recommended that each school principal furnish their superintendent with one copy for his use.

Each student receiving a failing grade(s) during a grading period will be reported to the school on the Failure Report. This listing, printed alphabetic-by-student, by grade level, is produced as an aid to guidance personnel. An example appears in Fig. 2-14. At present, this is a secondary school report only.

As an aid to the secondary subject teacher, an Incomplete Listing (see Fig. 2-15) is provided each period. The report is generated alphabetic-by-teacher and indicates the grading period and period during the day in which the student has incomplete work. Many schools post this report in an area frequented by teachers (teacher work areas, conference rooms, etc.) but not accessable to students. This, as well as the optical scanning sheets, serve to remind teachers what students have outstanding requirements and indicates that student records maintained at the center reflect incomplete work.

A listing provided the principal each grading period, the Grade Distribution Report (See Fig. 2-16) is printed in teacher sequence at present. The report is furnished to assist the principal in gaining an overall picture of individual grading guidelines and procedures. In an attempt to make the report more meaningful, it is planned that printing be done in teacher-subject (class) sequence in the future.

Currently, the system generates a listing by grade level of students with all "A's" and "B's" for each grading period which constitutes the honor roll. The report illustrated in Fig. 2-17 indicates the type of auxiliary reporting we wish to provide to the schools. While the format and data contained in the example (Fig. 2-17) are yet to be finalized, this serves to illustrate our direction of thought on the subject.

The gummed labels illustrated in Fig. 2-18 and Fig. 2-19 are generated at the end of each school year for posting student records. These stickers contain a summary of grades received during the year and attendance data for each student. Printed on pressure-sensitive stock, the stickers are easily attached to each pupil record by a clerical person and thus relieve teachers of this annual task.

ATTENDANCE REPORT [redacted] SENIOR HIGH GRADE 12 GRADE PERIOD-4

STUDENT-NUMBER	STUDENT NAME	SEX	DAYS PRESENT	DAYS ABSENT	TIMES TARDY	HR
169000	[redacted], GARRY L	M	23.0	7.0	0	012B
169800	[redacted], DEBORAH J	F	29.0	1.0	0	012B
171000	[redacted], JOHN A	M	30.0	0.0	0	012B
171400	[redacted], MARY E	F	27.5	2.5	0	012B
173400	[redacted], KARREN	F	30.0	0.0	2	012A
175000	[redacted], JEFF	M	27.5	2.5	0	012B
176400	[redacted], BARBARA J	F	30.0	0.0	0	012B
177800	[redacted], SUSAN J	F	24.5	5.5	0	012B
178600	[redacted], JANET E	F	29.0	1.0	0	012B
181200	[redacted], RODNEY F	M	27.5	2.5	3	012B
183200	[redacted], LINDA K	F	27.0	3.0	7	012B
184200	[redacted], TOM L	M	29.5	0.5	0	012B
187200	[redacted], HARRIS H	M	12.5	17.5	0	012B
189600	[redacted], GREG	M	28.5	1.5	2	012B
191000	[redacted], MARJORIE A	F	30.0	0.0	0	012B
191800	[redacted], TOM L	M	28.0	2.0	1	012B
192200	[redacted], LUNDY	M	24.0	6.0	0	012B
193000	[redacted], JAMES H	M	29.0	1.0	0	012B

BOY 32 GIRL 24 TOTAL 1,570.5 109.5 34

GRADE LEVEL TOTALS

BOY 153 GIRL 132 TOTAL FOR SCHOOL 8,047.0 489.0 90

PREVIOUS ATTENDANCE 24,477.0 1,226.0 362

YEAR-TO-DATE ATTENDANCE 32,524.0 1,715.0 472

LAST PAGE - SCHOOL TOTALS

Fig. 2-13 - Attendance Report

FAILURES [redacted] JUNIOR HIGH

STUDENT ID	STUDENT NAME	TEACH NAME	TEACH CODE	SUBJ NAME	SUBJ CODE
104000	[redacted] BARBARA	WILL	168	MATH 7	303
104000	[redacted] BARBARA	HEINTZ	076	ARCHO 7	952
117400	[redacted] JAMES P	GALE	060	SCI 7	201
123200	[redacted], TIM	HEINTZ	076	ARCHO 7	952
124600	[redacted], RICKEY	GALE	060	SCI 7	201
126585	[redacted], DIANNE	WOODWAR	176	ENG 7	010
126585	[redacted], DIANNE	DAVIS	040	U HISGO	101
126585	[redacted], DIANNE	GALE	060	SCI 7	201
126585	[redacted], DIANNE	WILL	168	MATH 7	303
126585	[redacted], DIANNE	HEINTZ	076	ARCHO 7	952
128000	[redacted], DALE	GALE	060	SCI 7	201
128000	[redacted], DALE	WILL	168	MATH 7	303
128000	[redacted], DALE	HEINTZ	076	ARCHO 7	952
128200	[redacted] DAN	HEINTZ	076	ARCHO 7	952
131400	[redacted], GUY	GALE	060	SCI 7	201
131400	[redacted], GUY	HEINTZ	076	ARCHO 7	952
136000	[redacted], DAVID	GALE	060	SCI 7	201
141600	[redacted], WILLIAM M	HEINTZ	076	ARCHO 7	952
142000	[redacted], SCOTT R	HEINTZ	076	ARCHO 7	952
143300	[redacted], ALAN D	HEINTZ	076	ARCHO 7	952
153200	[redacted], MARILY	DAVIS	040	U HISGO	101
153200	[redacted], MARILY	GALE	060	SCI 7	201
153600	[redacted], MIKE L	DAVIS	040	U HISGO	101
166000	[redacted], MAL M	NEMETH	112	GPE 7	883
166000	[redacted], MAL A	HEINTZ	076	ARCHO 7	952
174300	[redacted], MARK	HEINTZ	076	ARCHO 7	952
180601	[redacted], DARRELL	GALE	060	SCI 7	201

TOTAL 27

Fig. 2-14 - F

[redacted] JUNIOR HIGH GRADE PERIOD-4

SUBJ NAME	SUBJ CODE	PERIOD	GRADE	HOME ROOM	GR LEVEL	GRADE PERIOD
MATH 7	303	3	F	007C	07	4
ARCHO 7	952	1	F	007C	07	4
SCI 7	201	8	F	007B	07	4
ARCHO 7	952	1	F	007C	07	4
SCI 7	201	7	F	007A	07	4
ENG 7	010	2	F	007A	07	4
U HISGO	101	6	F	007A	07	4
SCI 7	201	7	F	007A	07	4
MATH 7	303	4	F	007A	07	4
ARCHO 7	952	1	F	007A	07	4
SCI 7	201	5	F	007C	07	4
MATH 7	303	3	F	007C	07	4
ARCHO 7	952	1	F	007C	07	4
ARCHO 7	952	7	F	007B	07	4
SCI 7	201	7	F	007A	07	4
ARCHO 7	952	1	F	007A	07	4
SCI 7	201	5	F	007C	07	4
ARCHO 7	952	1	F	007A	07	4
ARCHO 7	952	7	F	007B	07	4
ARCHO 7	952	7	F	007B	07	4
U HISGO	101	3	F	007B	07	4
SCI 7	201	8	F	007B	07	4
U HISGO	101	2	F	007C	07	4
GPE 7	883	9	F	007B	07	4
ARCHO 7	952	7	F	007B	07	4
ARCHO 7	952	1	F	007A	07	4
SCI 7	201	07	F	007A	07	4

Fig. 2-14 - Failure Report

INCOMPLETES [redacted] JUNIOR HIGH

STUDENT NO	STUDENT NAME	TEACH NAME	TEACH CODE	SUBJ NAME	SUBJ CODE
100600	[redacted], ROBER	HEINTZ	076	ARCHO 8	953
102800	[redacted], CHARL	HEINTZ	076	ARCHO 8	953
104200	[redacted], LEEROY	HEINTZ	076	ARCHO 8	953
110596	[redacted], BEVERLY	HEINTZ	076	ARCHO 8	953
111200	[redacted], SCOTT	HEINTZ	076	ARCHO 8	953
136000	[redacted], GENE K	HEINTZ	076	ARCHO 7	952
TOTAL		6			
100800	[redacted], ROBER	LOCKE	092	SCI 8	202
TOTAL		1			

Fig. 2-15 -

PAGE

JUNIOR HIGH GRADE PERIOD-4

J NAME	SUBJ CODE	PERIOD	GRADE	HOME ROOM	GR LEVEL	GRADE PERIOD
HO 8	953	1	1	008B	08	4
HO 8	953	1	1	008B	08	4
HO 8	953	1	1	008B	08	4
HO 8	953	1	1	008C	08	4
HO 8	953	1	1	008C	08	4
HO 7	952	7	1	007B	07	4
8	202	4	1	008B	08	4

Fig. 2-15 - Incomplete Listing

FIG. 2-16 - GRADE DISTRIBUTION REPORT

GRADE DISTRIBUTION LINCOLN HIGH SCHOOL

TEACH NAME	TEACH #	NO.A	NO.B	NO.C	NO.D	NO.F	NO.I	% A	%
ANTOINE	006	10	18	26	28	4	1	11.5	20
ANTOINE	00L			1				00.0	00
BJERSTE	022	3	38	24	11	6	5	03.4	43
CANTY	058	13	17	18	16	20	3	14.9	19
CHRISTE	068	8	42	37	19	10	1	06.8	35
CHRISTE	102		1					00.0	100
DAY	124	8	23	25	12	17		09.4	27
DURETTE	159	4	21	19	10	37	1	04.3	22
FARST	160	77	8	6	1	1		82.8	08
ODELL	177	4	2	4	2	3		26.7	13
FISHER	184	3	15	7	7	9		07.3	34
FISHER	187					1		00.0	00
FOHS	191	6	15	20	14	14	19	06.8	17
GAISER	202	12	32	24	4	2		16.2	41
GOBLE	214	17	33	33	21	9	6	14.3	27
GRAYEM	220	45	29	28	28	36	4	26.5	17
HALEY	236	10	15	15	8	3	1	19.2	23
HARDY	240	26	28	24	14	8	8	24.1	23
HOWARD	266	20	23	15	10	17	9	21.3	23
HUNTER	280	19	14	22	8	8	6	24.7	17
CHRISTE	305			2				00.0	0
KESSLER	312	94	23	2		1		78.3	1

GR1140

LN HIGH SCHOOL — GRADE PERIOD-3

NO.I	% A	% B	% C	% D	% F	% I	GRADES GIVEN
1	11.5	20.7	29.9	32.2	04.6	01.1	87
	00.0	00.0	100.0	00.0	00.0	00.0	1
5	03.4	43.7	27.6	12.6	06.9	05.7	87
3	14.9	19.5	20.7	18.4	23.0	03.4	87
1	06.8	35.9	31.6	16.2	08.5	00.9	117
	00.0	100.0	00.0	00.0	00.0	00.0	1
	09.4	27.1	29.4	14.1	20.0	00.0	85
1	04.3	22.8	20.7	10.9	40.2	01.1	92
	82.8	08.6	06.5	01.1	01.1	00.0	93
	26.7	13.3	26.7	13.3	20.0	00.0	15
	07.3	36.6	17.1	17.1	22.0	00.0	41
	00.0	00.0	00.0	00.0	100.0	00.0	1
19	06.8	17.0	22.7	15.9	15.9	21.6	88
	16.2	43.2	32.4	05.4	02.7	00.0	74
6	14.3	27.7	27.7	17.6	07.6	05.0	119
4	26.5	17.1	16.5	16.5	21.2	02.4	170
1	19.2	28.8	28.8	15.4	05.8	01.9	52
8	24.1	25.9	22.2	13.0	07.4	07.4	108
9	21.3	24.5	16.0	10.6	18.1	09.6	94
6	24.7	18.2	28.6	10.4	10.4	07.8	77
	00.0	00.0	100.0	00.0	00.0	00.0	2
	78.3	19.2	01.7	00.0	00.8	00.0	120

CLASS STUDENT RANKING

FINAL PERIOD

SCHOOL YEAR 67-68

[redacted]

STUDENT NAME	ST.NBR	SEX	GRADE	***FINAL GRADES ONLY *** POINTS	CREDIT	G.P.A.	RANK
BLAKEMAN. DAVID G	108400	M	10	9.750	4.75	2.053	48
SAYRE. JIM S	171200	M	10	9.750	4.75	2.053	48
LOSCHIAVO. TONY C	146600	M	10	9.750	4.75	2.053	48
WIRTH. DONALD M	191200	M	10	10.000	5.00	2.000	51
SMITH. DAVID L	178200	M	10	11.000	5.50	2.000	51
RAYNARD. MIKE M	164200	M	10	9.000	4.50	2.000	51
HARTMAN. SCOTT A	134400	M	10	9.000	4.50	2.000	51
HANNA. MARK A	130800	M	10	9.500	5.00	1.900	55
SMURR. DEBBIE L	178400	F	10	9.000	4.75	1.895	56
CRAIG. STEVE L	110000	M	10	8.500	4.50	1.889	57
BROWN. SAM A	112000	M	10	8.500	4.75	1.789	58
ROBERTS. LARRY E	107000	M	10	8.000	4.50	1.778	59
ALLENSWORTH. DEANIE V	101400	F	10	9.000	5.25	1.714	60
SHIPP. PATTIE M	175800	F	10	8.000	4.75	1.684	61
CARRUTHERS. SHARON S	114000	F	10	8.250	5.00	1.650	62
BARNHART. PAUL R	104400	M	10	7.750	4.75	1.632	63
WILLIAMSON. JAN	109800	F	10	8.500	4.00	1.625	64
STEMEN. GLEN M	181000	M	10	8.000	5.00	1.600	65
MCKINNEY. GARY L	153800	M	10	7.500	4.75	1.579	66
MOSATHOS. CHARLES	139801	M	10	7.000	4.50	1.556	67
COOK. TEDD M	117800	M	10	8.500	4.50	1.444	68
COAKLEY. RONNIE N	116000	M	10	5.500	4.00	1.375	69
PIERCE. TERESA A	103000	F	10	7.750	5.75	1.348	70
OHARA. JACK	101000	M	10	8.000	4.50	1.333	71
BOND. STEVEN M	104800	M	10	7.500	5.75	1.304	72
RINE. CAROLYN S	102200	F	10	5.500	4.75	1.158	73
COPAS. ROGER W	118200	M	10	5.000	4.75	1.053	74
CRAGO. MIKE J	118745	M	10	2.500	4.50	0.556	75

TOTAL STUDENTS IN CLASS 75

Fig. 2-17 - Grade Point Average - Class Rank Report

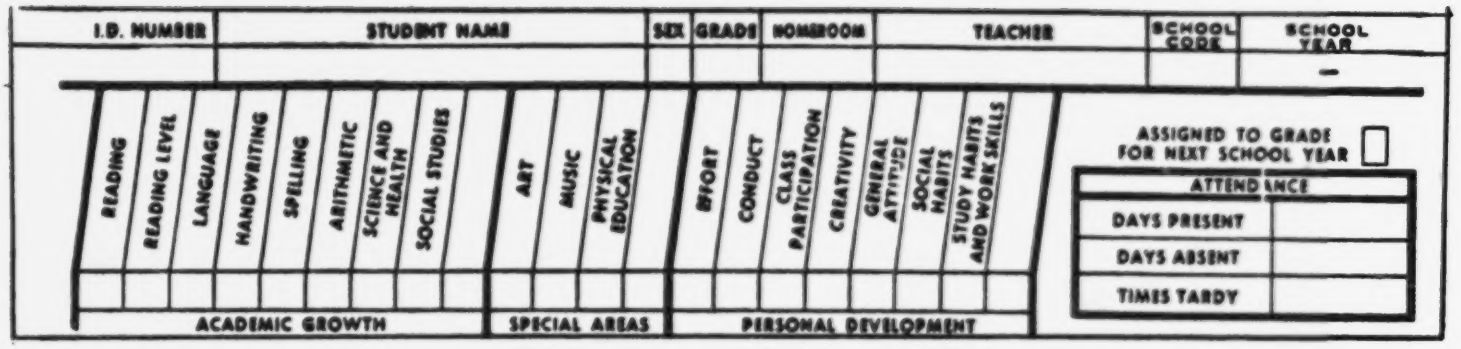


Fig. 2-18 - Elementary Record Label

STUDENT [redacted], DEBORAH E SEX: F No. [redacted] GR 09 H.R. 100

BROOKPARK JR H

ATTENDANCE	
PRESENT	173.0
ABSENT	7.0
TARDY	0.0

YEAR	SCHOOL	CODE	SUBJECT	1ST SEM.	2ND SEM.	FINAL	CREDIT	TEACHER
67-68	551	962	MUSIC	A	A	A	.50	CHUNKO
		903	ENGLISH	A	A	A	1.00	BROWN
		920	SCIENCE	B	A	A	1.00	CASSADY
		913	MATH	C	D	C	1.00	MCCORMI
		955	H ECON	A	A	A	1.25	DAILY
		943	FRENCH	C	B	B		SICKING
		995	P E	B	A	A	.25	HAMM

Fig. 2-19 - Secondary Record Label

SECTION 3
PUPIL SCHEDULING

PUPIL CLASS ASSIGNMENT (SCHEDULING) FUNCTIONS IN SECONDARY SCHOOL ENVIRONMENT

Section III
Pupil Scheduling

At some period during the second semester of the school year, each secondary school which intends to use the computer for the assignment of students for the coming year requests and receives from the Center a student course election card. The card is similar to that illustrated below and contains basic identification data taken from the student master file. Since the basic data machine-printed on each card are already coded into the card, it is not necessary to re-enter such.

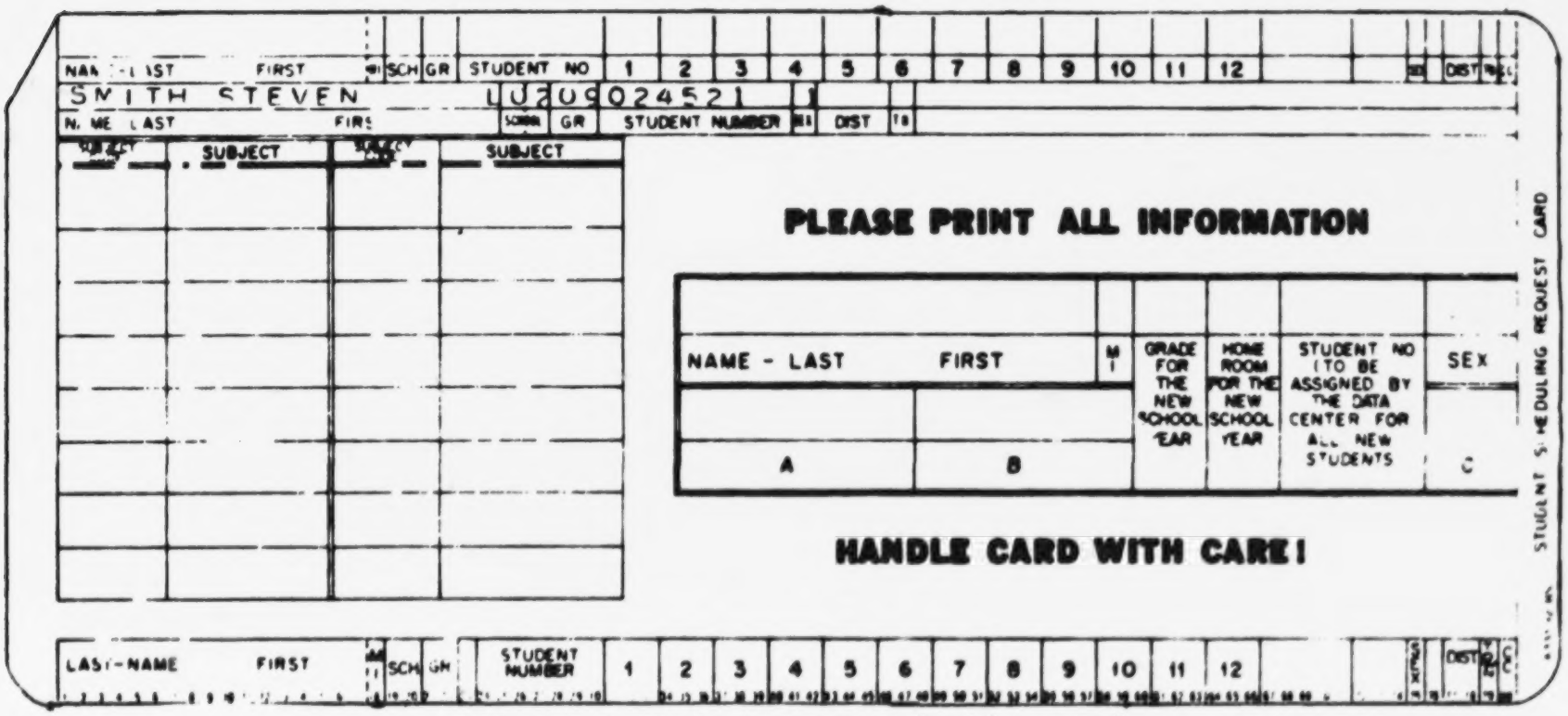


Fig. 3-1 Student Course Election Card

Following delivery of the Student Course Election Cards to the school, the registration activity is carried out according to the policies and wishes of the administration. Many schools prefer to prepare a Course Election Sheet listing all courses to be offered during the coming year which is completed at home by the student and his parents. These sheets are then reviewed by the student and his counselor and, if approved, the requests transferred to the SCE card. A typical registration sheet as prepared by the school and completed by the student and his parents is shown in Fig. 3-2. A completed SCE card is illustrated in Fig. 3-3.

REYNOLDSBURG JUNIOR HIGH SCHOOL - 701

STUDENT REGISTRATION FORM - 1966-67

LAST NAME	FIRST NAME	MIDDLE INIT.	SEX	NEXT YR. GRADE LEVEL	NEXT YR. H.R. NO.	STUDENT NO.	SCHOOL CODE
SMITH, JR.	STEVEN	L	M	9	-	-	701

Oct. 1 '66

HOUSE NO.	STREET NAME	CITY	ZIP CODE	PHONE NO.	AGE	
2336	GILETTE DR	REYNOLDSBURG	43068	866-1234	14	

7th GRADE

CODE	SUBJECT
	Required
010	English
301	Math
201	Science
106	World History
807	Vocal Music
752	Art
882	Phys. Ed. (Boys)
883	Phys. Ed. (Girls)
997	Lunch
	Electives
073	French I (Part 1)
826	Cadet Band

8th GRADE

CODE	SUBJECT
	Required
024	English
306	Math
202	Science
109	Am. History
110	O. History (1 Sem)
111	O. History (2 Sem)
585	Ind. Arts. (1st. Sem.)
501	Home Ec. (1 Sem.)
884	Phys. Ed. (Boys)
885	Phys. Ed. (Girls)
998	Lunch
	Electives
074	French I (Part 2)
842	Band
814	Chorus
754	Art
501	Home Ec. (1st. Sem.)

9th GRADE

CODE	SUBJECT	CR.
	Required	
(013)	English	1
322	Bus. Math	1
	or	
(329)	Algebra I	1
209	Biology I	1
	or	
(203)	General Science	1
(910)	Phys. Ed. (Boys)	¼ ¼
911	Phys. Ed. (Girls	
999	Lunch	
	Electives	
082	Latin I	1
(096)	Spanish I	1
115	Civics & W. Geog.	1
076	French II	1
408	Gen. Business	1
611	Mech. Drawing	1
(593)	Ind. Arts	1
503	Home Economics	1
(842)	Band	¼ ¼ ¼ ¼
816	Chorus	
759	Art I	

S. L. Smith
Parent's Signature

Jones
Counselor

Ass't. Principal

Principal

Fig. 3-2 - Student Registration Form

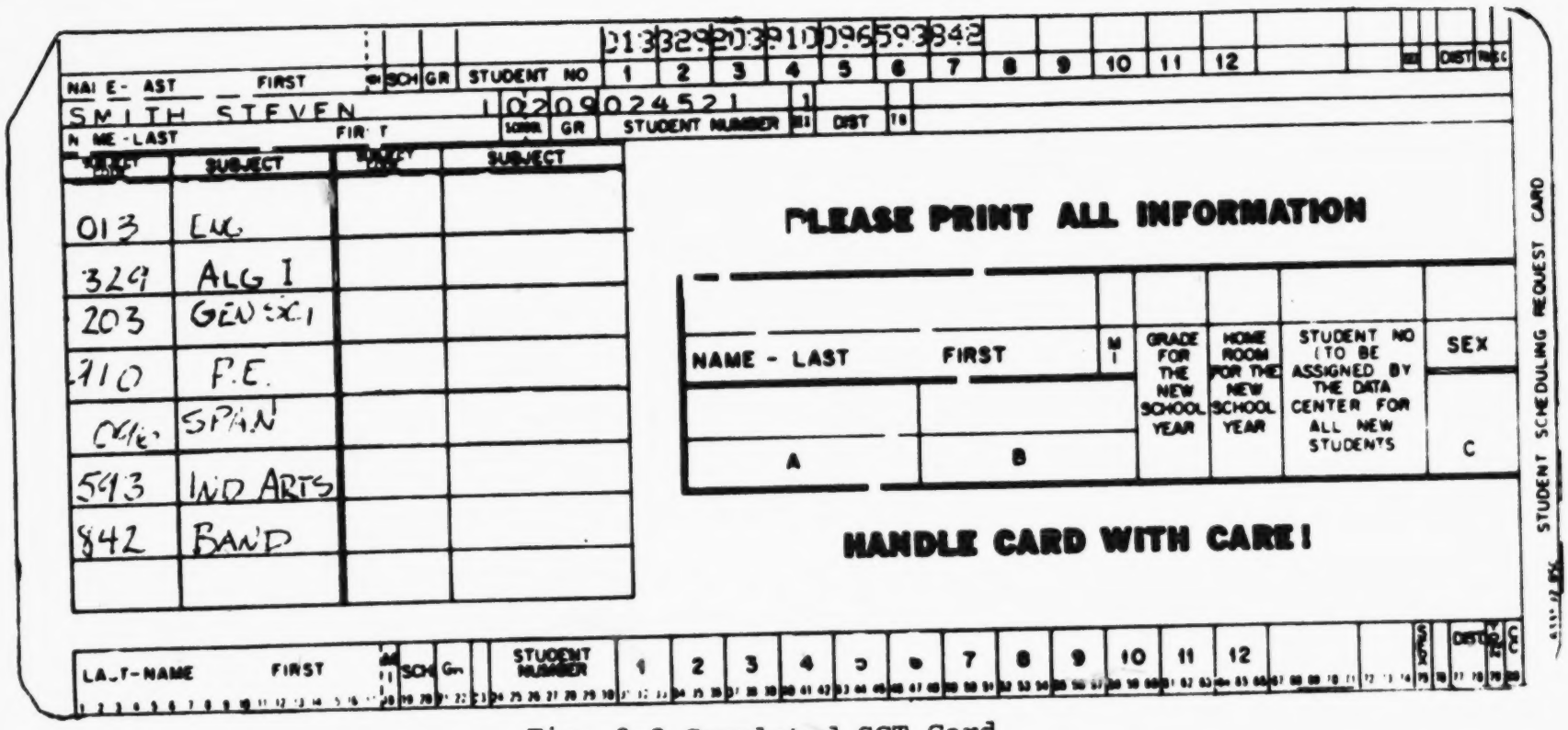


Fig. 3-3 Completed SCT Card

Phase 1

Once a school has completed all SCE cards, they are delivered to the Center for keypunching. A list of all courses offered by the school is also supplied the center. After the cards have been keypunched, the Tally and Paring Run (Phase 1) is made as illustrated in Fig. 3-4.

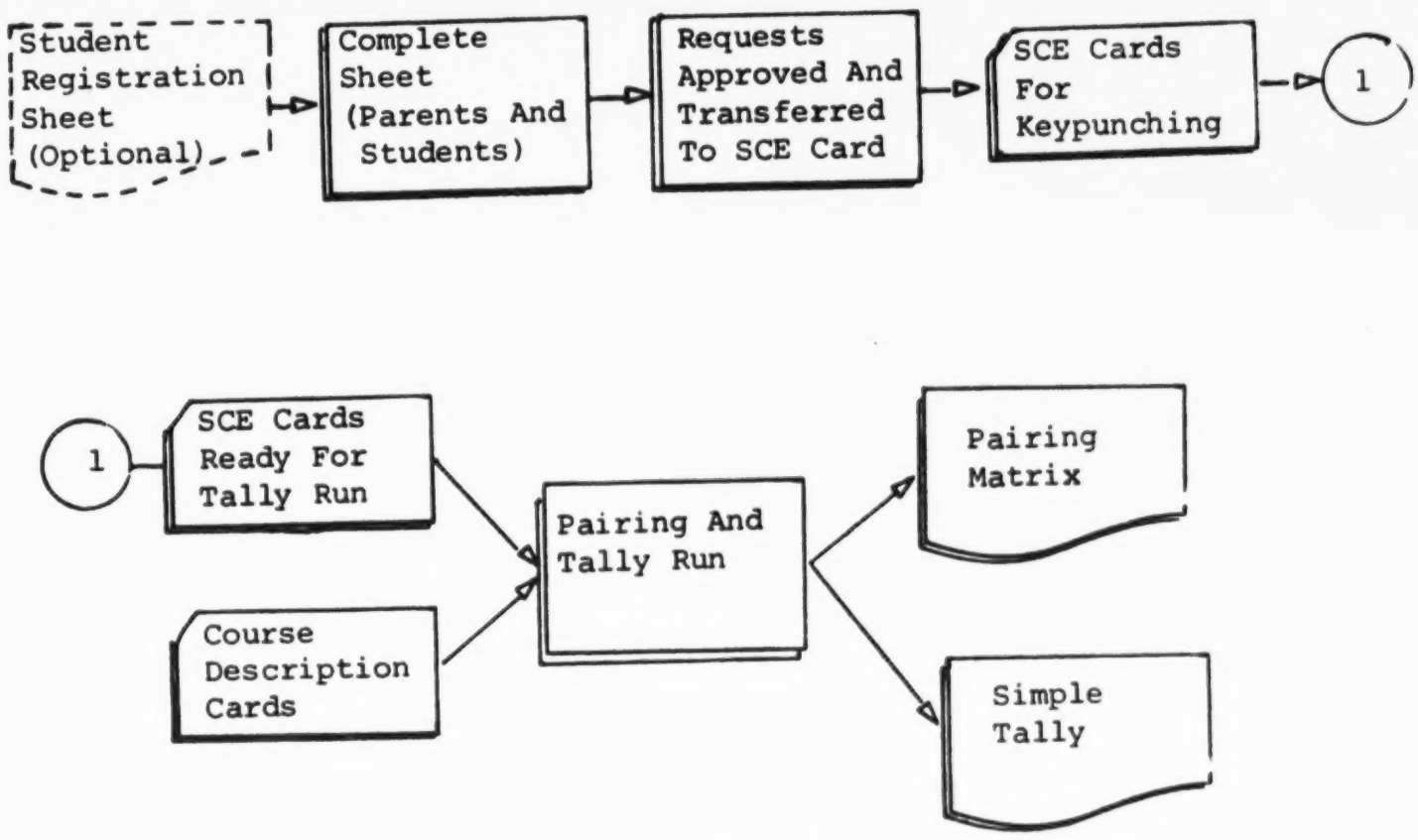


Fig. 3-4 - Initial Run For Tally and Paring

With the Tally and Pairing Matrix available, the principal can make certain basic decisions concerning his master schedule before he begins describing it. For example, a low number of requests for a subject might indicate to the principal that he cannot justify offering the course; a total of 95 requests, might indicate that four sections will be needed, etc. A typical Tally is illustrated in Fig. 3-5.

Once such decisions are made, the principal may begin to prepare his master schedule. From the Pairing Matrix, he can determine courses that may or may not be offered opposite one another. Figure 3-6 shows a typical Pairing Matrix. An example of how the Matrix is used can be seen by reading down the left column of the Matrix, Eng 4B (044), which had 29 elections. Reading across that line, the figure 16 indicates a high rate of conflict. Reading up that column, the course in conflict is 141. This could cause a problem. Reading down the line once more to the figure 54* and then across, 141 is found to be PAD. Since 54 have requested PAD, probably two sections will be offered and the chances of conflict with Eng 044 are reduced. Nevertheless, this tells the principal that he should space these courses out as much as possible in his schedule to avoid conflict.

By identifying all single and double offerings (commonly known as "singletons" and "doubletons") and spacing these courses in the master schedule, the principal greatly reduces the possibility of conflicting student schedules.

BLOOMINGTON HIGH 101 68/69 COURSE TALLIES RUN 03/18/68

COURSE DESC.	NO.	GRAND TOTAL	TOTAL OTHER	TOTAL MALE	GR 09 OTHER	GR 09 MALE	GR 10 OTHER	GR 10 MALE	GR 11 OTHER	GR 11 MALE	GR 12 OTHER	GR 12 MALE	NO GRADE OTHER	NO GRADE MALE
ENG 10 3R	018	48	14	34	.	.	9	22	1	1	.	.	4	11
ENG 11 3R	019	35	16	19	.	.	6	.	10	17	.	.	.	2
ENG 12 3R	020	7	2	5	.	.	.	.	1	.	1	5	.	.
ENG 10A	021	102	60	42	.	.	39	29	.	.	.	.	21	13
ENG 10 1	022	161	89	72	.	.	53	55	.	.	.	.	36	17
ENG 10 2	023	71	35	36	.	.	20	25	.	1	.	.	15	10
ENG 10 3	024	48	17	31	.	.	12	19	.	.	.	.	5	12
ENG 11A	025	71	50	21	.	.	.	.	50	21	.	.	.	.
ENG 11 1	026	172	98	74	.	.	.	1	95	71	1	.	2	2
ENG 11 2	027	91	36	55	.	.	.	1	34	53	2	1	.	.
ENG 11 3	028	62	23	39	.	.	1	3	21	33	.	1	1	2
ENG 12A	029	97	41	56	.	.	.	.	.	.	41	56	.	.
ENG 12 1	031	130	58	72	.	.	.	.	2	1	56	71	.	.
ENG 12 2	032	51	17	34	.	.	.	.	.	3	17	31	.	.
ENG 12 3	033	32	12	20	.	.	.	.	1	3	11	17	.	.
SPEECH	034	53	24	29	.	.	4	2	11	10	7	15	2	2
AD SPEECH	035	9	5	4	.	.	.	.	4	.	.	3	.	.
AEPIX	036	19	16	3	.	.	.	.	2	.	14	3	.	.
AEGIS	037	23	18	5	.	.	1	.	8	2	9	2	.	1
GERM I	038	21	10	11	.	.	3	5	4	5	1	.	2	1
GERM II	039	19	7	12	.	.	.	.	.	1	7	11	.	.
FRENCH I	041	124	96	28	65	18	9	6	11	3	.	.	11	1
FRENCH II	042	78	53	25	.	.	21	10	9	4	14	5	9	6
FRENCH III	043	30	25	5	.	.	.	.	19	4	6	1	.	.
FRENCH IV	044	15	8	7	.	.	.	.	.	.	8	7	.	.
LATIN I	045	99	53	46	41	34	6	8	1	3	.	.	5	1
LATIN II	046	76	45	31	.	.	23	18	6	4	1	1	15	8
LATIN III	047	43	26	17	.	.	.	.	25	16	1	1	.	.
LATIN IV	048	21	8	13	.	.	.	.	.	.	8	13	.	.
SPAN I B	049	49	26	23	8	9	8	3	6	7	1	.	3	4
SPAN II	051	28	17	11	.	.	4	1	8	5	3	3	2	2
SPAN III	052	15	7	8	.	.	1	.	6	4	.	4	.	.
SPAN IV	053	9	6	3	.	.	.	.	.	.	6	3	.	.
ALG I	061	186	89	97	53	48	16	25	7	11	.	3	13	10
GEN ACL	062	46	26	20	.	.	14	16	1	.	.	.	11	4
GEOM I	063	184	97	87	.	.	54	41	17	16	1	12	25	18
G MAT ACT	064	67	24	43	.	.	15	27	1	2	2	.	6	14
G MATH II	065	44	8	36	.	.	2	18	4	10	.	2	2	6
ALGTRIG A	066	21	11	10	.	.	.	.	11	10	.	.	.	.
INT ALG	068	36	13	23	.	.	.	.	12	20	1	3	.	.
TRIG	069	36	13	23	.	.	.	.	12	20	1	3	.	.
PRE CAL A	071	11	2	9	.	.	.	.	.	.	2	9	.	.
COL ALG	073	42	4	38	.	.	.	.	1	.	3	38	.	.
ANAL GEOM	074	37	4	33	.	.	.	.	1	.	3	33	.	.
ALG II	075	47	18	29	.	.	.	.	16	19	2	10	.	.
BIOLOGY I-1	081	233	132	101	.	.	66	65	24	11	2	6	40	19
BIOLOGY I-2	082	67	21	46	.	.	9	22	7	13	.	3	5	8
CHEM 1	083	86	46	40	.	.	.	.	36	35	10	5	.	.
CHEM 2	084	45	10	35	.	.	.	1	10	27	.	7	.	.
PHYS 1	085	43	9	34	.	.	.	.	.	.	9	34	.	.

Fig. 3-5 - Simple Tally

COURSE NUMBERS — TOTAL REQUESTS FOR COURSE 065 — NUMBER OF POTENTIAL CONFLICTS BETWEEN COURSES 035 and 135

COURSE CONFLICT MATRIX — PAIR & TALLY MATRIX

CENTRAL HIGH		01		67/68																	
COURSE DESC.	NO.	044	045	046	048	065	090	091	110	115	116	120	125	126	130	135	136	140	141	146	155
	TOTALS	29	14	94	71	118	26	26	281	21	168	157	7	118	160	21	184	20	54	49	49
ENG 1 E	010	.	.	.	.	7	.	.	53	.	.	.	.	.	.	.	.	.	.	.	.
ENG 1 A	011	.	.	.	.	13	.	.	114	.	.	.	.	.	.	.	.	.	.	.	.
ENG 1 B	014	.	.	.	.	14	.	.	112	.	.	3	.	3	.	.	.	.	.	.	.
ENG 1 F B	015	.	.	.	.	2	.	.	.	15	4	.	.	.	.	.	.	.	.	.	.
ENG 1 BUS	016	.	.	.	.	8	.	.	.	6	83	.	.	5	.	.	1	.	.	.	3
ENG 1 GEN	018	.	.	.	.	12	.	.	.	.	80	.	.	6	.	.	.	.	.	.	1
ENG 2 E	020	.	.	.	.	4	.	.	.	.	.	30	.	.	.	.	.	.	.	.	.
ENG 2 A	021	.	.	.	.	9	.	.	.	.	.	78	.	.	.	.	.	.	.	.	.
ENG 2 B	024	.	.	.	.	5	.	.	1	.	.	47	.	.	2	.	1	.	.	.	.
ENG 2 F B	025	.	.	.	.	.	.	.	.	.	.	.	7	.	.	.	.	.	.	.	3
ENG 2 BUS	026	.	.	.	.	13	.	.	.	.	.	.	.	88	.	.	12	.	.	.	4
ENG 2 GEN	028	.	.	.	.	6	.	.	.	.	.	.	.	23	.	.	9	.	.	.	1
ENG 3 E	030	.	.	.	.	1	2	2	.	.	.	.	.	.	13	.	.	.	.	.	.
ENG 3 A	031	.	.	.	.	3	7	7	.	.	.	.	.	.	90	.	.	.	1	.	.
ENG 3 B	034	1	.	.	.	8	2	2	.	.	.	1	.	.	49	.	.	.	.	1	.
ENG 3 F B	035	.	.	.	.	1	.	.	.	.	.	.	.	.	.	19	1	.	.	.	.
ENG BUS	036	.	.	6	.	6	.	.	.	.	.	.	.	.	.	2	103	.	.	.	.
ENG GEN	038	1	.	2	9	6	.	.	.	.	1	.	.	.	1	.	71	.	.	1	.
ENG 4 E	040	.	.	.	.	.	7	7	.	.	.	.	.	.	4	.	.	8	7	.	.
ENG 4 A	041	.	.	.	.	.	7	7	.	.	.	.	.	.	1	.	.	10	31	.	.
ENG 4 B	044	29*	.	.	.	.	1	1	.	.	.	.	.	.	2	.	1	2	16	1	.
ENG 4 F B	045	.	14*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ENG 4 BUS	046	.	.	94*	.	1	.	.	.	.	1	.	.	.	.	.	3	.	.	24	.
ENG 4 GEN	048	.	.	.	71*	4	.	.	1	.	.	.	.	.	.	.	5	.	.	24	.
DEV READG	065	.	.	1	4	118*	.	.	32	3	14	15	.	10	10	2	10	.	.	2	3
CR WRIT.G	090	1	.	.	.	.	26*	26	.	.	.	.	.	.	7	.	.	3	4	.	.
P SPEAK.G	091	1	.	.	.	.	26	26*	.	.	.	.	.	.	7	.	.	3	4	.	.
ANC HIST	110	.	.	.	1	32	.	.	281*	.	.	.	.	.	.	.	.	.	.	.	.
CIVICS FB	115	.	.	.	.	3	.	.	.	21*	.	.	.	.	.	.	.	.	.	.	.
CIV BUS.	116	.	.	1	.	14	.	.	.	.	168*	.	.	.	.	.	.	.	.	.	.
WRLD HIST	120	.	.	.	.	15	.	.	.	.	.	157*	.	.	.	.	.	.	.	.	.
W HIST FB	125	.	.	.	.	.	.	.	.	.	.	.	7*	.	.	.	.	.	.	.	1
W HIST BG	126	.	.	.	.	10	.	.	.	.	.	.	.	118*	.	.	.	.	.	.	5
US HIST C	130	2	.	.	.	10	7	7	.	.	.	.	.	.	160*	.	.	.	1	.	.
US HISTFB	135	.	.	.	.	2	.	.	.	.	.	.	.	.	.	21*	.	.	.	.	.
US HISTBG	136	1	.	3	5	10	.	.	.	.	.	.	.	.	.	.	184*	.	.	2	.
WRLD PROB	140	2	.	.	.	.	3	3	.	.	.	.	.	.	.	.	.	20*	8	.	.
P.A.D.	141	16	.	.	.	.	4	4	.	.	.	.	.	.	1	.	.	8	54*	.	.
P.A.U.	146	1	.	24	24	2	.	.	.	.	.	.	.	.	.	.	2	.	.	49*	.
GEOGRAPHY	155	.	.	.	.	3	.	.	.	.	.	1	5	.	.	.	.	.	.	.	49*
GEOGRAPHY	158	.	.	.	2	2	.	.	1	.	.	.	.	12	.	.	5	.	.	1	.
ECONOMICS	191	12	.	.	.	.	3	3	.	.	.	.	.	.	12	.	.	7	18	.	.
ECONOMICS	196	.	5	32	30	6	1	1	.	.	.	.	.	.	.	1	21	.	1	15	.
M MATH 1E	210	.	.	.	.	6	.	.	38	.	.	.	.	.	.	.	1	.	.	.	.
MATH 1A	211	.	.	.	.	13	.	.	95	.	.	6	.	.	.	.	1	.	.	.	.
MATH 1B	214	.	1	4	6	16	.	.	100	.	.	33	1	4	10	4	5	.	.	4	.
ARITH FB	215	.	.	.	.	3	.	.	.	18	4	.	.	.	.	.	.	.	.	.	.
ARITH BUS	216	.	.	.	.	6	.	.	.	3	83	.	.	2	.	.	.	.	.	.	.
G MATH 1	218	.	.	.	1	11	.	.	.	.	80	.	.	4	.	.	2	.	.	1	.
PRESMATH1	219	.	.	.	.	5	.	.	48	.	.	10	.	.	.	.	.	.	.	.	.

Fig. 3-6 - Typical Pairing Matrix

Master Schedule 16K

DISTRICT _____
SCHOOL NAME _____
SCHOOL NUMBER _____

X	LINE	SUBJECT CODE	COURSE DESCRIPTION	SEM CODE	SECTION	SPLIT IND	PERIOD	ROOM NUMBER	DAYS MET M	T	W	R	F	CREDIT	SEATS	PRIORITY	INSTRUCTOR'S NAME FIRST	LAST	INSTR CODE
1	1	886	PHYS. ED.	3	01		4	GYM	0	1	0	1	0	025	50		D.	JONES	322
2	2	886	PHYS. ED.	3	02		5	GYM	0	1	0	1	0	025	50		D.	JONES	
3	3	896	HEALTH	3	01		4	200	1	0	1	0	1	000	50		D.	JONES	
4	4	897	HEALTH	3	01		5	200	1	0	1	0	1	000	50		D.	JONES	

Fig. 3-7 - Typical Master Schedule Description

WRITING THE MASTER SCHEDULE

Once the principal has prepared a rough form of his schedule, he describes his proposed schedule for computer simulation. This is done on the form furnished by the Center and illustrated in Fig. 3-7. Specifications and instructions to assist the principal in describing his master schedule are provided by the center and a series of seminars conducted by personnel from the Center provides the principal with valuable information. The center also has personnel available to work on an individual basis with the principal at all times.

From the master schedule forms prepared by the principal, the center prepares a course master file on cards and the first simulation is made. Keep in mind that the schedule presented by the principal at this time is strictly a "proposed" schedule and can, and probably will, be adjusted following the first simulation or "trial run" on the computer.

First Simulation Run

The illustration below shows how the first simulation run is made.

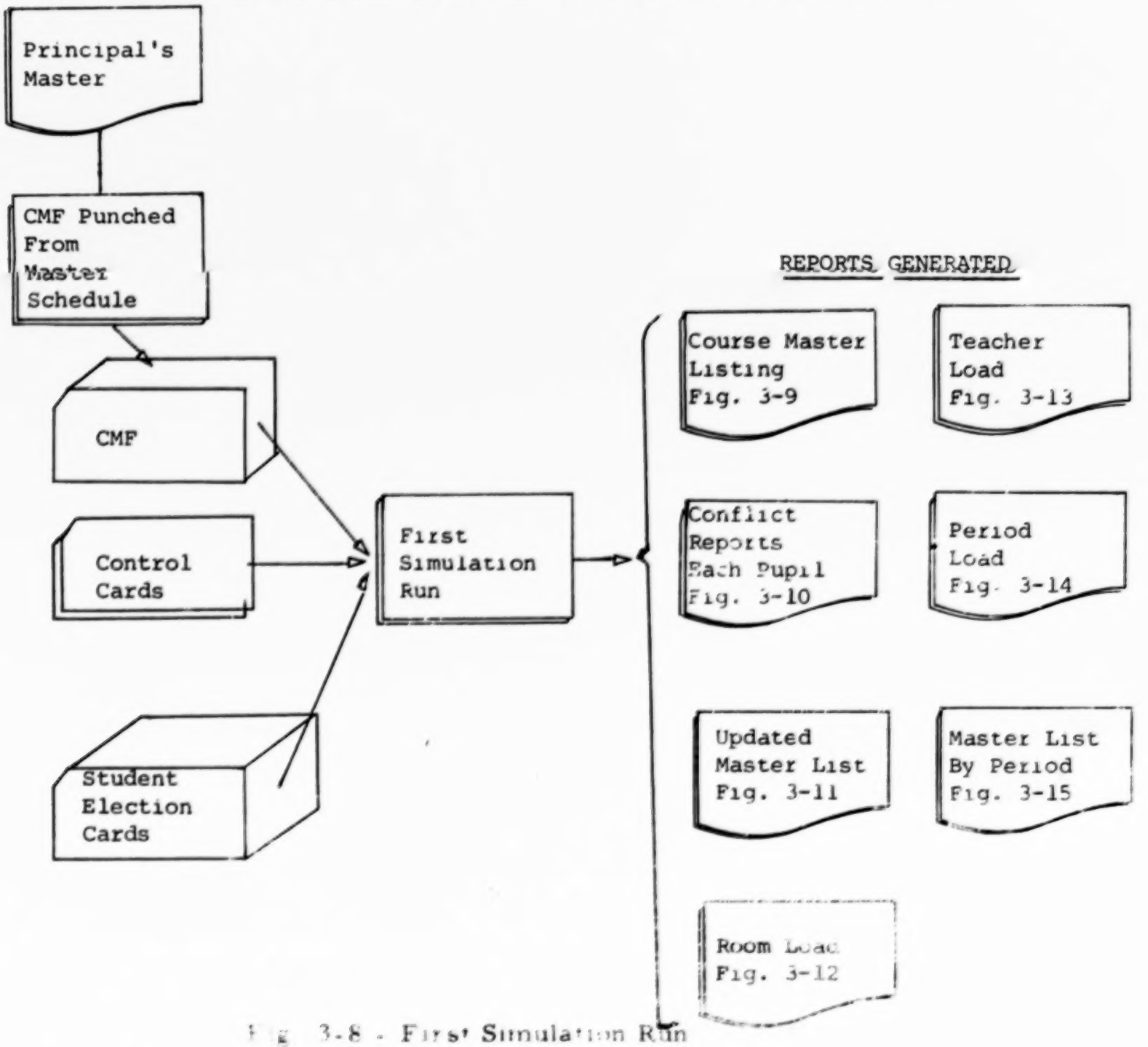


Fig. 3-8 - First Simulation Run

Several valuable reports and listings are generated for use by the principal at the time of simulation. Examples and a brief discussion of each follow.

CENTRAL HIGH — MASTER SCHEDULE LISTING — PAGE 011

CRS NUM	COURSE DESCRIPTION	SEMES.	SECTION	PERIOD	ROOM	DAYS MET	CREDITS	SEATS AVAIL	PRIORITY CONTROL	INSTRUCTORS NAME		INSTR CODE
255	BIOLOGY	3	09	4	342	F	100	029	?	JOSEPH	FISHER	504 **
255	BIOLOGY	3	09	5	342	ALL		029	?	JOSEPH	FISHER	504 **
255	BIOLOGY	3	10	4	346	F	100	029	?	GEORGE	CRONIN	503 **
255	BIOLOGY	3	10	5	346	ALL		029	?	GEORGE	CRONIN	503 **
255	BIOLOGY	3	11	5	345	ALL	100	029	1	ROBERT	POTTS	509 **
255	BIOLOGY	3	11	6	345	T		029	1	ROBERT	POTTS	509 **
255	BIOLOGY	3	12	6	342	T	100	029	?	DOROTHY	GANZ	505 **
255	BIOLOGY	3	12	7	342	ALL		029	?	DOROTHY	GANZ	505 **
255	BIOLOGY	3	13	6	345	F	100	029	?	ROBERT	POTTS	509 **
255	BIOLOGY	3	13	7	345	ALL		029	?	ROBERT	POTTS	509 **
257	APPL CHEM	3	01	5	125	ALL	100	023		CHRIS	VIGLIOTTA	512 **
257	APPL CHEM	3	02	3	227	ALL	100	023		CHRIS	VIGLIOTTA	512 **
257	APPL CHEM	3	03	8	126	ALL	100	023		RAY	KOBIELSKI	508 **

Fig. 3-9 - Course Master Listing

This listing is generated after the master schedule proposed by the principal is read into the computer. Numerous items in the proposed schedule are edited for errors and "warnings" printed on the master listing if possible problem areas are detected. Items such as missing sections, improper coding, etc. are checked before each simulation run.

Once the master schedule has completed the edit routine, student request cards are read and the computer attempts to schedule each student into the proposed master schedule. If a student is successfully scheduled, nothing is printed during simulation; the student's schedule

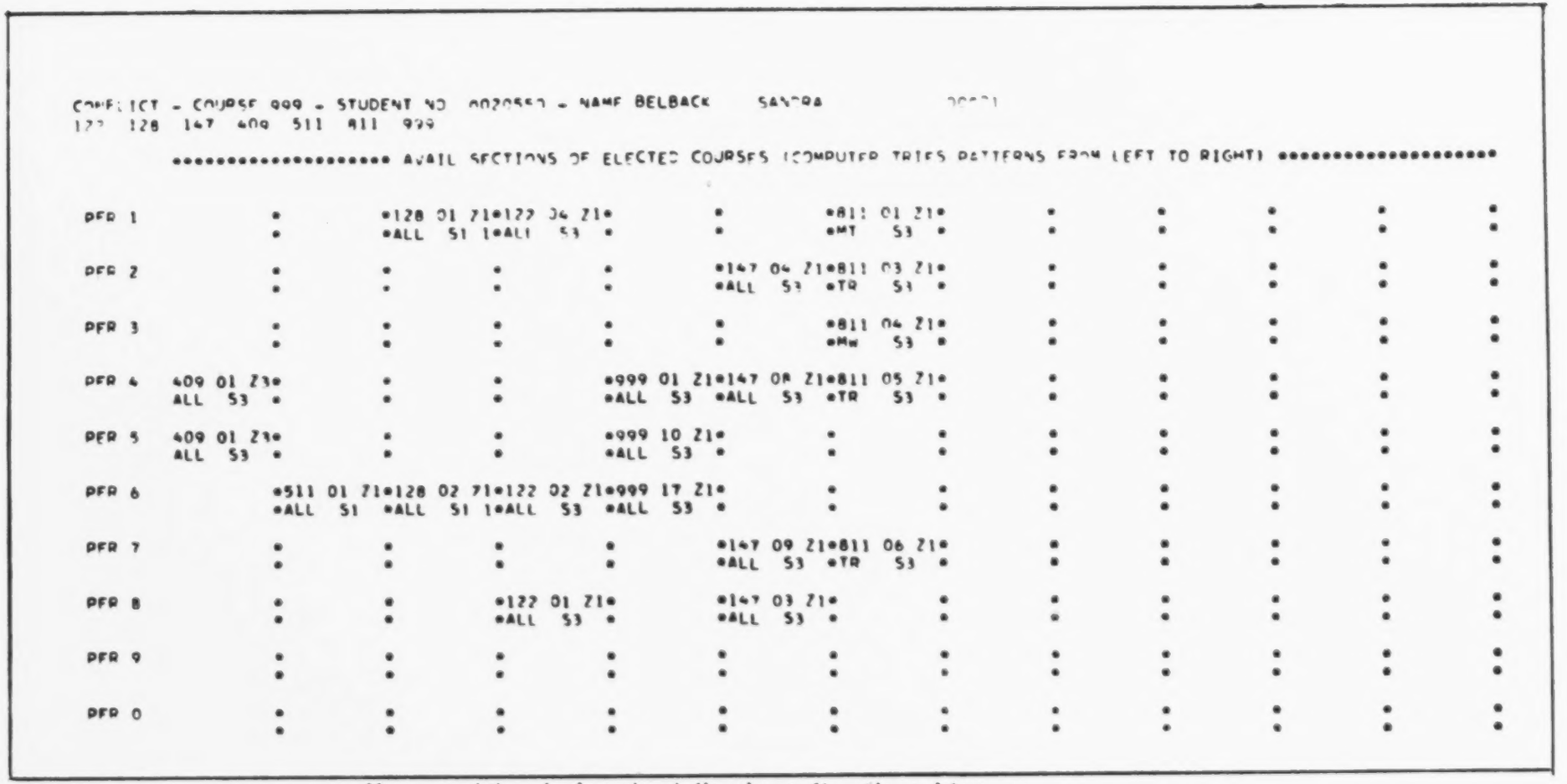


Fig. 5-10 - Individual Student Conflict Matrix

is written on tape and the next student's requests considered. If, however, a student cannot be scheduled, a matrix is generated showing the manner in which the computer attempted to schedule the student, the course creating the conflict, the number of attempts made to schedule before rejecting the student and other reference data. This matrix can be a very useful aid in adjusting individual student requests or the master schedule.

Once the computer has considered each student's request card, the simulation is complete and a total is printed indicating the number of students that could not be successfully scheduled. An updated master list is also generated showing the number of seats used, the number remaining, etc. This listing is most valuable in spotting poorly placed sections, periods requiring additional sections, etc.

CENTRAL HIGH — UPDATED MASTER SCHEDULE — 67/68

COURSE NUMBER	SEC.	DESCRIPTION	SEM	DAYS	PER	PR/ CODE	ROOM	CREDIT	----SEATS---- START	OPEN	USED	TEACHER NO.	NAME
255	01	PHYSICS	3	ALL	31	1	202	100	28	05	23	236	JOHNSON ROBT.
255	01	PHYS LAB	3	MW	3	1	202		28	05	23	236	JOHNSON ROBT.
255	02	PHYS LAB	3	TF	3	2	202	100	28	07	21	236	JOHNSON ROBT.
255	02	PHYSICS	3	ALL	4	2	202		28	07	21	236	JOHNSON ROBT.
255	03	PHYSICS	3	ALL	35	2	202	100	28	05	23	236	JOHNSON ROBT.
255	03	PHYS LAB	3	MT	8	2	202		28	05	23	236	JOHNSON ROBT.
255	04	PHYS LAB	3	RF	8	1	202	100	28	06	23	236	JOHNSON ROBT.
255	04	PHYSICS	3	ALL	9	1	202		28	06	22	236	JOHNSON ROBT.
255	05	PHYSICS	3	ALL	1	2	202	100	28	07	21	509	BATES DAVID
255	05	PHYS LAB	3	TR	2	2	202		28	07	21	509	BATES DAVID
255	06	PHYS LAB	3	WF	52	1	202	100	28	06	22	509	BATES DAVID
255	06	PHYSICS	3	ALL	5	1	202		28	06	22	509	BATES DAVID
256	01	SR SCI	3	ALL	3		211	100	32	02	30	105	JORDAN PAUL
256	02	SR SCI	3	ALL	9		003	100	32	04	28	105	JORDAN PAUL

Fig. 3-11 - Updated Master Schedule Listing

If, after careful study of the listings generated to this point, the principal wishes to make adjustments to his master schedule, room load and teacher load listings assist him in making sound and sensible modifications. These listings indicate rooms that are vacant each day and period, seats available in sections when the room is in use, etc. The teacher load reports is similar to the room load report, the one exception being that it is generated by teacher rather than room number sequence.

CENTRAL HIGH — ROOM LOAD REPORT — 67/68

COURSE NUMBER	SEC.	DESCRIPTION	SEM	DAYS	PER	PR/ CODE	ROOM	CREDIT	----SEATS---- START	OPEN	USED	TEACHER NO.	NAME
		HOME ROOM	3	ALL	00		126					512	VIGLIOTTA
259	01	CHEMISTRY	3	ALL	1		126	100	24	14	10	508	KOBIELSKI
259	01	CHEMISTRY	3	MW	2		126		24	14	10	508	KOBIELSKI
259	06	CHEMISTRY	3	TR	2		126		24	14	10	507	HARRIS
		----	1	F	2								
		----	2	F	2								
259	05	CHEMISTRY	3	MW	3	1	126	100	24	14	10	501	SMITH
		----	1	TRF	3								
		----	2	TRF	3								
259	05	CHEMISTRY	3	ALL	4	1	126		24	14	10	501	SMITH
259	12	CHEMISTRY	3	MF	4	* 2	126	100	24	08	16	507	HARRIS
259	04	CHEMISTRY	3	TR	4	* 1	126		24	14	10	508	KOBIELSKI
259	12	CHEMISTRY	3	ALL	5	2	126		24	08	16	507	HARRIS
259	07	CHEMISTRY	3	ALL	6	1	126	100	24	19	05	508	KOBIELSKI
259	07	CHEMISTRY	3	MW	7	1	126		24	19	05	508	KOBIELSKI
259	11	CHEMISTRY	3	TR	7	2	126	100	24	14	10	507	HARRIS
		----	1	F	7								
		----	2	F	7								
257	03	APPL CHEM	3	ALL	8		126	100	23	14	09	508	KOBIELSKI

Fig. 3-12 - Room Load Listing

CENTRAL HIGH — TEACHER LOAD REPORT — 67/68

COURSE NUMBER	SEC.	DESCRIPTION	SEM	DAYS	PER	PR/ CODE	ROOM	CREDIT	----SEATS---- START	OPEN	USED	TEACHER NO.	NAME
		HOME ROOM	3	ALL	00		212					408	PHELAN
203	05	MATH 9	3	ALL	1		212	100	25	12	13	408	PHELAN
		----	1	ALL	2								
		----	2	ALL	2								
207	07	MATH 11	3	ALL	3		212	100	27	17	10	408	PHELAN
209	02	MATH 12A	1	ALL	4		212	050	25	14	11	408	PHELAN
211	02	MATH 12B	2	ALL	4		212	050	25	18	07	408	PHELAN
		----	1	ALL	5								
		----	2	ALL	5								
209	03	MATH 12A	1	ALL	6		212	050	25	08	17	408	PHELAN
211	03	MATH 12B	2	ALL	6		212	050	25	05	20	408	PHELAN
		----	1	ALL	7								
		----	2	ALL	7								
207	08	MATH 11	3	ALL	8		212	100	27	20	07	408	PHELAN

Fig. 3-13 - Teacher Load Listing

CENTRAL HIGH COURSE MASTER LIST - BY PERIOD 67-68

TOTAL UTILIZATION:	-------- SEMESTER 1 --------					-------- SEMESTER 2 --------				
PERIOD	MON	TUES	WED	THUR	FRI	MON	TUES	WED	THUR	FRI
01	633	634	600	632	618	632	633	599	631	617
02	592	582	586	582	565	586	576	580	576	559
03	632	614	632	585	598	632	614	632	585	598
04	485	533	499	533	520	479	527	493	527	514
05	496	468	468	501	501	497	469	469	502	502
06	493	536	495	485	513	494	537	496	486	514
07	573	596	601	564	580	576	599	604	567	593
08	604	583	604	613	604	605	584	605	614	605
09										
10										

Fig. 3-14 - Period Load Listing

The period load listing provides the principal with an overall picture of period balance by semester. Each figure indicates the number of students assigned to a class each period. Therefore, by subtracting each figure from the total enrollment of the school, the principal knows the number of study hall seats he must have available each period.

The master listing by period, shown in Fig. 3-15, breaks the master schedule down into the more traditional manner which principals use in constructing the conventional master schedule. It also furnishes the principal with a section by section breakdown of the total figures provided by period in the period load listing and indicates the number of remaining seats available for use each period.

CENTRAL HIGH COURSE MASTER LIST - BY PERIOD 67/68

COURSE NUMBER	SEC.	DESCRIPTION	SEM	DAYS	PER	PR/ CODE	ROOM	CREDIT	----SEATS---- START	OPEN	USED	TEACHER NO.	NAME
013	05	ENGLISH 3	3	ALL	02		009	100	32	05	27	722	BRILL JOAN
014	02	ENGLISH 3	3	ALL	02		020	100	32	05	27	143	GROSS CLARE
014	06	ENGLISH 3	3	ALL	02		024	100	32	05	27	287	BERTE STEPHEN
014	08	ENGLISH 3	3	ALL	02		217	100	32	04	28	295	CRONIN MARY
019	02	ENGLISH 4	3	ALL	02		005	100	32	05	27	642	DOBERT GERALD
021	01	ENGLISH 4	3	ALL	02		209	100	32	08	24	314	RUSSO FRANK
030	01	JOURN 2	3	ALL	02		027	100	32	12	20	452	MCBRIDE JOAN
040	01	DRAM 3	3	ALL	02		022	50	30	10	20	647	MCBRIDE KENNETH
103	02	U S HIST	3	ALL	02		211	100	32	03	29	520	HARRIS PATRICIA
103	11	U S HIST	3	ALL	02		210	100	32	04	28	962	ROGERS JAMES
113	01	GOVT POD	3	ALL	02		206	100	30	07	23	317	MURPHY MARY
113	04	GOVT POD	3	ALL	02		216	100	32	08	24	406	DIETSCHE IRA
211	02	ADV ALG	3	ALL	02		215	100	32	09	23	577	BROWN RAY
255	05	PHYS LAB	3	TR	02	2	003		28	07	21	509	BATES DAVID
255	06	PHYS LAB	3	MF	02	1	002	100	28	06	22	509	BATES DAVID
307	01	LATIN 3	3	ALL	02		007	100	32	17	15	335	JACKSON JAN

Fig. 3-15 - Master Listing By Period

Following the first simulation run, the principal, with the aid of the listings provided him, analyzes the results. Certain basic items must be evaluated and decisions reached as to how the results can be improved. The following constitutes fundamental areas of consideration:

1. Were any of the individual conflicts created by students requesting more subjects than could possibly be scheduled into the number of periods in the master schedule

2. Were conflicts the results of "singletons" and "doubletons" creating a "block-out" effect. Remember that when a section of a "doubleton" is offered opposite a "singleton," the remaining section of the "doubleton," for all practical purposes also becomes a "singleton." The same is true with two "singletons" offered opposite a "tripleton" course. In the example shown in Fig. 3-16, course 074 becomes a "singleton" since it is offered opposite "singleton" 025 first period.

3. Has one course conflicted sufficiently to justify moving it to another period in the master schedule.

4. Are there certain sections of a course that are "loading" poorly and might be opened up by moving it or another course in direct opposition to it (usually a "singleton").

PER 1	025 01 Z3*	*	*	*	*	*074 01 Z1*
	ALL S3 *	*	*	*	*	*MWF S3 *
PER 2	*	*	*	*	*842 01 Z1*	*
	*	*	*	*	*ALL S3 *	*
PER 3	*	*	*107 01 Z1*	*	*	*
	*	*	*ALL S3 *	*	*	*
PER 4	*	*	*	*	*	*074 02 Z1*
	*	*	*	*	*	*MWF S3 *
PER 5	*	*220 01 Z1*	*	*	*	*
	*	*ALL S3 *	*	*	*	*
PER 6	*308 01 Z1*	*	*	*	*	*
	*ALL S3 *	*	*	*	*	*
PER 7	*	*	*	*113 01 Z1*	*	*
	*	*	*	*ALL S1 *	*	*
PER 8	*	*	*	*	*	*
	*	*	*	*	*	*
PER 9	*	*	*	*	*	*
	*	*	*	*	*	*
PER 0	*	*	*	*	*	*
	*	*	*	*	*	*

Fig. 3-16 - Example of "Doubleton" Which Assumes "Singleton" Status

5. Do individual conflict charts indicate periods which do not contain requested courses. Note in Fig. 3-17 that periods 4, 8, and 9 are vacant of courses this student has requested.

PER 1	011 01 Z3*	*	*	*	*	*	*
	ALL S3 *	*	*	*	*	*	*
PER 2	*	*212 01 Z1*	*	*	*587 01 Z1*	*884 01 Z1*	*
	*	*ALL S3 *	*	*	*ALL S2	*MW S3	*
PER 3	*	*	*102 01 Z1*	*	*	*884 02 Z1*	*
	*	*	*ALL S3 *	*	*	*TR S3	*
PER 4	*	*	*	*	*	*	*
	*	*	*	*	*	*	*
ER 5	*305 01 Z1*	*	*	*112 01 Z1*	*587 02 Z1*	*	*
	*ALL S3 *	*	*	*ALL S2	*ALL S2 *	*	*
PER 6	*	*	*	*	*	*884 03 Z1*	*
	*	*	*	*	*	*MW S3	*
PER 7	*	*	*	*	*587 03 Z1*	*884 04 Z1*	*
	*	*	*	*	*ALL S2	*WF S3	*
PER 8	*	*	*	*	*	*	*
	*	*	*	*	*	*	*
PER 9	*	*	*	*	*	*	*
	*	*	*	*	*	*	*
PER 0	*	*	*	*	*	*	*
	*	*	*	*	*	*	*

Fig. 3-17 - "Open" Periods Related To Student Requests

After such considerations are weighed and the appropriate adjustments made, the second simulation run is made in exactly the same manner as the first. In certain situations, a third may be necessary before an acceptable master schedule is realized.

FINAL RUN

Shortly before school opens, the final run is made. This routine is illustrated below:

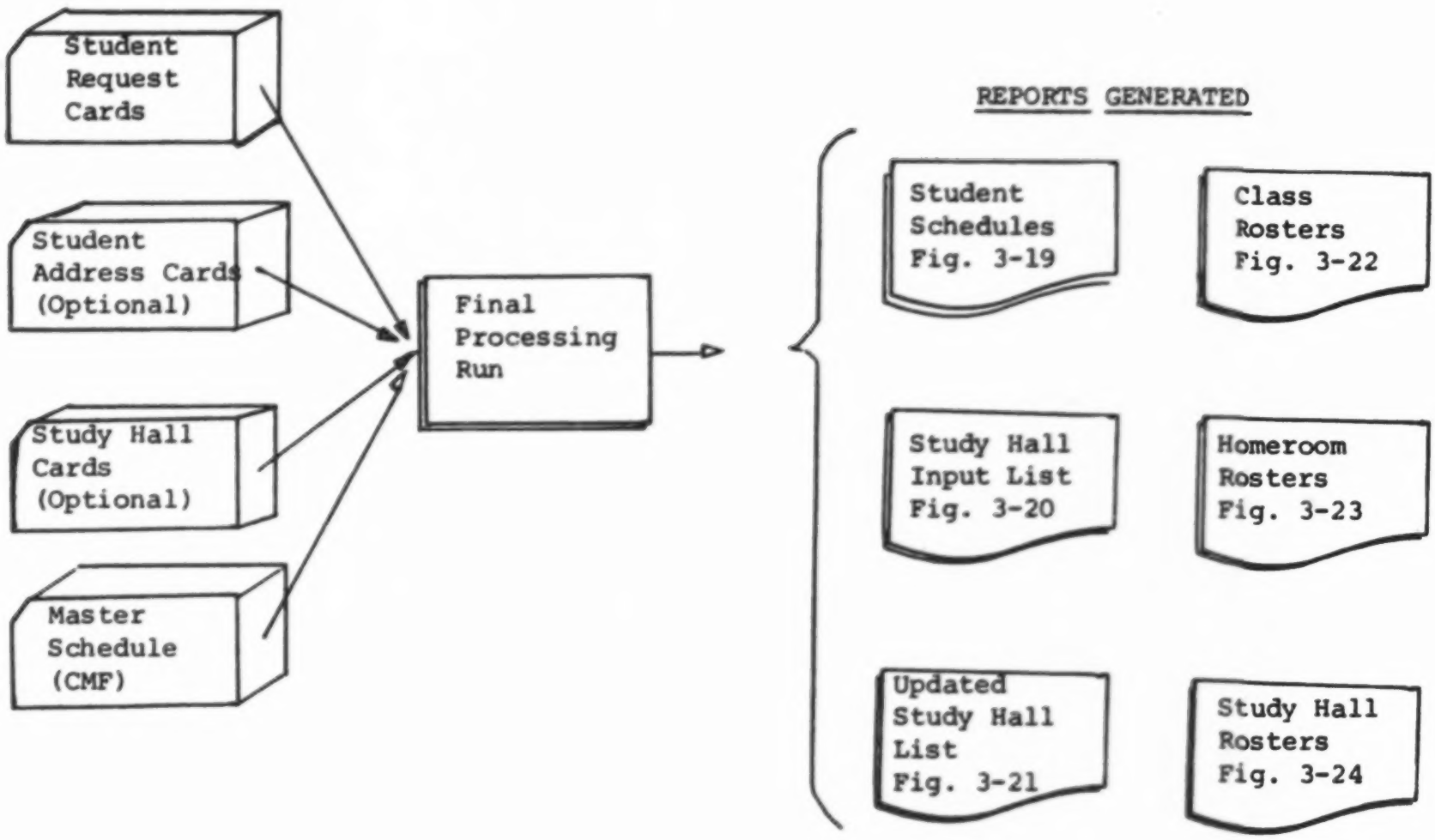

Student Request Cards
Student Address Cards (Optional)
Study Hall Cards (Optional)
Master Schedule (CMF)
Final Processing Run
REPORTS GENERATED
Student Schedules Fig. 3-19
Class Rosters Fig. 3-22
Study Hall Input List Fig. 3-20
Homeroom Rosters Fig. 3-23
Updated Study Hall List Fig. 3-21
Study Hall Rosters Fig. 3-24

Fig. 3-18 - Final Run

Examples of each report produced at this time follow.

The student schedule is printed in multiple copy with two copies produced on heavy stock for filing purposes. Addresses can be included as an optional feature.

PUPIL SCHEDULE — CENTRAL HIGH

STUDENT NAME	GRADE	HOME ROOM	SCHOOL YR.	BIRTH DATE	SEX	STUDENT NO
DUANE HENDRICKSON	10	306	67/68	04 01 52	M	0801275

HOME ADDRESS	PARENT NAME	HOME PHONE
862 E NORTH WATER		

COURSE DESCRIPTION	PERIOD	ROOM	CREDIT	SEMESTER	DAYS MET	INSTRUCTORS NAME	REMARKS
106 ENG 10G	01	435	1.00	3	ALL	GROUVER	
639 ADV ART	02	327	.50	1	ALL	WILKINS	
STUDYHALL	02	302		2	AI L		
205 MATH 10	03	214	1.00	3	AI L	SCALISI	
STUDYHALL	04	302		1	MTWR		
STUDYHALL	04	302		2	MTWR		
255 BIOLOGY	04	LB5	1.00	3	F	FISHER	
255 BIOLOGY	05	255		3	ALL	FISHER	
306 LATIN 2	06	009	1.00	3	ALL	BRADY	
912 PHYS ED	07	GYM	.25	3	AI L	ROBERTS	
137 HIST 10G	08	217	1.00	3	ALL	HERMAN	

*SEMESTER CODE 1 1st SEMESTER 2 2nd SEMESTER 3 BOTH SEMESTERS

Fig. 3-19 - Student Schedule

Notice that semester codes designate yearly and single semester courses.

The study hall input list is actually a "master schedule" for all study halls. Since study halls are not considered during the simulation runs, they do not come into the picture until this time. This listing indicates the section number, room number, and "dummy" section each period for "overflow" use. The seats available are also designated on this listing. An option at this point is to leave vacant periods in a student's schedule unassigned.

SEMESTER	SECTION	PERIOD	ROOM	DAYS	SEATS AVAILABLE	
1	01	01	203	XXXXX	30	:
1	02	01	CAF	XXXXX	29	:
1	XX	01	XXX	XXXXX	99	:
1	01	02	203	X X X	30	:
1	02	02	CAF	XXXXX	28	:
1	XX	02	XXX	XXXXX	99	:
1	01	03	203	XXXX	20	:
1	02	03	CAF	XXXXX	13	:
1	XX	03	XXX	XXXXX	99	:
1	01	04	203	XXXXX	45	:
1	02	04	135	XXXXX	45	:
1	XX	04	XXX	XXXXX	99	:
1	01	05	203	XXXXX	68	:
1	02	05	135	XXXXX	68	:
1	XX	05	XXX	XXXXX	99	:
1	01	06	203	XXXXX	68	:
1	02	06	CAF	XXXXX	68	:
1	XX	06	XXX	XXXXX	99	:
1	01	07	203	XXXXX	30	:
1	02	07	CAF	XXXXX	23	:
1	XX	07	XXX	XXXXX	99	:
1	01	08	203	XXXXX	25	:

Fig. 3-20 - Study Hall Input Listing

Following the final pass, an updated study hall list is also generated which is the equivalent of an updated master schedule. This listing (Fig. 3-21) shows the number of seats used each period of the day each semester. This affords the principal an ove view of balance in study hall sections and guides him in assigning new students much in the same way as the Updated Master Schedule.

STUDY HALL SUMMARY

SEATS	PER-SECT	ROOM	SEM	MON	TUE	WED	THU	FRI
065	1-01	213	1	049	055	065	057	061
065	1-02	215	1	050	043	061	035	040
065	2-01	213	1	064	062	065	062	065
065	2-02	215	1	053	054	057	054	065
065	3-01	213	1	043	046	043	065	062
065	3-02	215	1	041	052	041	065	052
065	4-01	213	1	052	043	052	043	052
065	4-02	215	1	000	000	000	000	000
065	5-01	213	1	039	058	039	058	039
065	5-02	215	1	000	000	000	000	000
065	6-01	213	1	048	057	065	059	062
065	6-02	215	1	049	045	061	037	041
065	1-01	213	2	061	057	065	055	049
065	1-02	215	2	040	035	061	043	050
065	2-01	213	2	062	065	062	065	062
065	2-02	215	2	054	057	054	065	054
065	3-01	213	2	043	046	043	065	062
065	3-02	215	2	041	052	041	065	052
065	4-01	213	2	043	052	043	052	043
065	4-02	215	2	000	000	000	000	000
065	5-01	213	2	058	039	058	039	058
065	5-02	215	2	000	000	000	000	000
065	6-01	213	2	049	055	065	057	061
065	6-02	215	2	050	043	061	035	040

Fig. 3-21 - Updated Study Hall List

Class Rosters (Fig. 3-22) are also generated in multiple copy for each section of each class. Identification information pertaining to each class as well as data on each student assigned to each section appears on this listing. Total enrollment by sex is also given at the end of each roster.

CENTRAL HIGH 09-67

COURSE 306-01 LATIN 2 ROOM 009 PERIOD 6 MEETS MTWRF
TEACHER 986 BRADY FRANCES CREDITS: 100 SEMESTER 1 & 2

NAME		SEX	GRADE	HR	STUDENT #
ALDUINO	ABRAHAM	M	10	306	0100123
BARBARO	MARTHA	F	10	310	0203456
CATHAWAY	CELESTE	F	10	310	0301789
DESIO	ROSEANNE	F	10	306	0405000
DESSATTI	RAMONE	M	10	310	0404135
FORESTER	RICHARD	M	10	310	0604531
FURGUNSON	LORRAINE	F	10	306	0602351
GRAHAM	BARBARA	F	10	327	0700125
GUNTHUR	RONALD	M	10	327	0705257
HENRICKSON	DUANE	M	10	306	0801275
HOWARD	SUSAN	F	10	310	0809527
HULLENDORF	HENRY	M	10	327	0813572
JOHANSEN	ELIZABETH	F	10	306	1003725
JOHNSON	DOUGLAS	M	10	306	1004752
KING	JOHN	M	10	306	1104310
KLINGER	KENNETH	M	10	327	1105301
KNUTSON	GREGORY	M	10	310	1103482
LINDERMAN	LAURA	F	10	306	1203428
SORENSON	FRANCINE	F	10	327	2007249
FREEMAN	CHARLES	M	12	208	0601284
JORJENSON	JEFFREY	M	12	208	1005824
KING	MARGARET	F	12	208	1105842
THOMPSON	STEVEN	M	12	203	2113350

TOTAL 23 FEMALE 10 MALE 13

Fig. 3-22 - Class Roster

Homeroom Rosters (Fig. 3-23) are produced in much the same manner as class rosters. This roster is also produced in multiple copies and includes much the same data as the class roster.

NUMBER TITLE PER INST ROOM DAYS SEM SCL
HOME ROOM 306

CODE	PUPIL NAME	SEX	GRADE
102207	ALBERTSON DOLGLAS	M	10
100123	ALDUINO ABRAHAM	M	10
200270	BALBONI ANNETTE	F	10
263516	BARTON MARY	F	10
287561	BROWN HAROLD	M	10
306027	CHRISTOPOLOUS CARO	F	10
405000	DESIO RUSEANNE	F	10
417072	DOUGLAS GEORGE	M	10
514702	EVERETT IRVING	M	10
623015	FITZGERALD JENNI	F	10
620720	FRANKEL LISA	F	10
602351	FURGUNSON LORRAINE	F	10
732222	GORDON ARNOLD	M	10
801275	HENDRICKSON DUANE	M	10
896111	HOPE ANDREW	M	10
954333	INGLAS PETER	M	10
078666	JACOBSON PAUL	M	10
003725	JOHANSEN ELIZABETH	F	10
004752	JOHNSON DOUGLAS	M	10
138221	KELLY PATRICK	M	10
104210	KING JOHN	M	10
250110	LATHROP KENNETH	M	10
203428	LINDERMAN LAURA	F	10
329305	MCCONNELL JANET	F	10
347165	MCDONALD KELLY	F	10
327332	MCDOUGAL KATHLEFN	F	10
342651	MORROW BRENDA	F	10
449443	NESMITH NORRINE	F	10
516554	OLEARY DIANA	F	10
535615	OLSEN JULIANNE	F	10
812156	REYNERTSON JEANNE	F	10
808035	RONNING DONALD	M	10
191510	TOMASSONE DAVID	M	10
361501	VOLLENDORF GARY	M	10
650150	ZELENT BRUCE	M	10

TOTAL GIRLS 017 TOTAL BOYS 018 TOTAL STUDENTS 035

Fig. 3-23 - Homeroom Roster

The Study Hall Roster (Fig. 3-24) is similar to the homeroom and class rosters except each day that the student is in the particular study hall is indicated. Rosters are printed on a period and semester basis to allow for single semester study halls. Totals by sex are also furnished.

CENTRAL HIGH 09-67

TEACHER 062 WELLS SARAH M ROOM 302 PERIOD 4 WEETS TRF
SEMESTER 2

NAME		SEX	GRADE	HR	STUDENT #	DAYS
HARRIGAN	MAUREEN	F	09	103	0846531	TRF
SORENSON	PATRICIA	F	09	103	1997483	TRF
TALM						
ALBE						
ALDU						
BALB						
BARB						
BART						
BROW						
CATH						
CHRI						
DESI						
DESS						
DOUG						
EVER						
FITZ						
FORE						
FRAN						
FURG						
GORD						
GRAH						
GUNT						
HENR						
HOPE						
HOWA						
HULL						
INGL						
JACO						
JOHA						
JOHN						
KELL						
KING	JOHN	M	10	306	1104310	TF
KLINGER	KENNETH	M	10	327	1105301	TF
KNUTSON	GREGORY	M	10	310	1103482	TF
LATHROP	KENNETH	M	10	306	1250110	TF
LINDERMAN	LAURA	F	10	306	1203428	T
MCCONNELL	JANET	F	10	306	1329305	F
MCDONALD	KELLY	F	10	306	1347165	TRF
MCDOUGAL	KATHLEEN	F	10	306	1327332	T
MORROW	BRENDA	F	10	306	1342651	T

CONTINUED ON NEXT PAGE

CENTRAL HIGH 09-67

STUDYHALL ROSTER - CONTINUED

NAME		SEX	GRADE	HR	STUDENT #	DAYS
NESMITH	NORRINE	F	10	306	1449443	TR
OLEARY	DIANA	F	10	306	1516554	RF
OLSEN	JULIANNE	F	10	306	1535615	TRF
REYNERTSON	JEANNE	F	10	306	1812156	TRF
RONNING	DONALD	M	10	306	1808035	RF
SORENSON	FRANCINE	F	10	327	2007248	TF
TOMASSONE	DAVID	M	10	306	2191510	TRF
VOLLENDORF	GARY	M	10	306	2361501	TRF
ZELENT	BRUCE	M	10	306	2650150	F
HARRIGAN	KEVIN	M	11	218	0870204	F
PETERSEN	JAMES	M	11	204	1619163	F
UNDERHILL	RODNEY	M	11	218	2123165	T
VANDERHORNE	JASON	M	11	218	2264244	T
FREEMAN	CHARLES	M	12	208	0601284	TRF
JORJENSON	JEFFREY	M	12	208	1005824	TRF
KING	MARGARET	F	12	208	1105842	TRF
RYNERTSON	JUDITH	F	12	327	1880720	TRF
THOMPSON	STEVEN	M	12	203	2113350	TRF
WILLARD	LOUISE	F	12	323	2335035	RF
YOUNGER	SCOTT	M	12	327	2585364	F

TOTAL 60 FEMALE 27 MALE 33

Fig. 3-24 - Study Hall Roster

In the final analysis, the following can be said of computerized pupil scheduling:

1. The principal, within the limits of this method of computerized scheduling (here we refer to the "class loading" system) retains total control over his master schedule and, to a great degree, over individual student schedules.

2. The very fact that the principal is in control of the scheduling process makes it a "must" that he prepare a sound and logical master schedule. A master schedule that is not functional manually is no better when computerized.

3. Since so many items are thoroughly edited before processing by the computer, personnel collecting data for scheduling must pay particular attention to detail. Bad data assures tragic results.

4. While it is possible to complete scheduling for a school in a relatively short period of time, schools should not delay this task. It is definitely advantageous for all concerned to begin the scheduling function during the early part of the second semester.